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QUARTERLY

The seal of The Chicago Medical School is circular. It features a caduceus (a staff with two snakes entwined and wings at the top) in the center. The words "THE CHICAGO MEDICAL SCHOOL" are inscribed around the perimeter of the seal.

THE CHICAGO MEDICAL SCHOOL

VOLUME 5, NUMBER 1

MARCH, 1944

BUY

WAR



BONDS

QUARTERLY

Published Quarterly Under the Auspices of

THE CHICAGO MEDICAL SCHOOL

VOLUME 5, NUMBER 1

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Editorials . . .

MEDICINE AND NATIONS

WAR is a ruthless destroyer of lives, culture, property and happiness, but out of its misery and devastation arises one certain benefit to Mankind—its inevitable stimulus to scientific and inventive progress. This stimulation is felt strongly in the field of medicine where notable advances in military medicine have already been made which eventually will be applicable to civilian medical practice after the War.

An equally important effect of the War upon medicine is the ever-increasing interest that has been shown by medical groups in different countries in each other's progress. There are several probable reasons for this. Nations which are allied in the prosecution of the War find that political, economic and military cooperation is essential for the attainment of their common goal—victory. Likewise, the medical organizations of the Allies have a common goal—the maintenance of the health of their soldiers and civilians, and the saving of casualties, with the return to active duty of as many as possible. This common purpose naturally encourages a free exchange of ideas on the techniques involved and a closer cooperation in perfecting innovations. An example of this is the wide recognition of, and the growing interest in, Russia's progressive medicine.

Another factor to be considered is the closer contact between the medical personnel of different countries. British-built hospitals have been staffed with American Army doctors. American hospitals have been established in England and elsewhere, and American medical units are scattered all over the world—in North Africa, Italy, England, Australia, India. Medical men of different nations can thus observe foreign medical methods first-hand, can adopt what they like of each, and can work together toward all-around improvement. Even the medical science of Germany, Austria, and the occupied countries is somewhat at our disposal and exerts some influence through the hundreds of prominent physicians who fled from these countries to the Allied Nations.

There is no reason to believe that this international cooperation in medical science will diminish after the War. The benefits obtained from such mutual assistance are too great to be sacrificed to national-

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istic trends, if such develop. Science has never respected territorial borders, for its language is universal and its truths are immune to the laws and credos of men. Whether or not the concept of "one world" is achieved politically, Science, and with it Medical Science, has long recognized its logic, and is proceeding to make it a reality within its own field.



OUR ROLE IN THE WAR

THE sad news that one of our alumni has been killed in action while performing his duties as a soldier and physician causes us to pause for a moment in sober thought. Here was a man who, after years of hard study and diligent application to his work, finally reached his goal, became a doctor, and, shortly afterwards, gave his life in the service of his country. Nothing we say here can adequately express the magnitude of his sacrifice, nor can anything alter its finality. We can only recognize it, and use it as a measure for our own actions.

This news emphasizes the dangerous but vital work hundreds of our alumni are performing in the services. Several of our graduates have been wounded, and one of our men in Italy informs us that his unit was with one of the first waves of infantry that invaded the beaches below Naples, giving care to the wounded while under fire.

We who are in school will soon be following these men into the Army, and will have a tradition of skillful and meritorious service to uphold. The supplying of well-trained doctors to the armed forces, and as replacements in civilian medicine, is the most important contribution the School has made to our society. At present, it is the *only* object of our training. The fine record of the School and its graduates in this program justifies the feeling of quiet pride engendered in those of us who are aware of it. Failure or refusal to recognize this contribution of the School constitutes a denial of recognition to men who are saving lives, and who are suffering and dying in the service of our country.

THE TECHNIQUE OF PSYCHOTHERAPY—I

RUDOLF DREIKURS, M.D.

Professor of Psychiatry, The Chicago Medical School

(This is the first of a series of articles by Dr. Dreikurs which will appear in forthcoming issues of the QUARTERLY. Dr. Dreikurs's work in psychology is well known both here and abroad. He is President of the Individual Psychology Association of Chicago, editor of the Individual Psychology Bulletin, and director of several child guidance clinics in Chicago. Of the several books he has written, his "Introduction to Individual Psychology" has been published in four languages. We feel honored to present these articles of practicable value to our readers.—Ed.)

EVER since the first systematic attempts to influence man's psychic life therapeutically, various theories have been held with a view to furnishing a scientific foundation for the different therapeutic methods. Let us cite those of Charcot, Bernheim, Dubois, Coué, and Freud, besides that whole army of practicing psychotherapists who have developed numerous theories to support their own more or less individually-colored methods of treatment. Alfred Adler's Individual Psychology has given us a definite approach to psychotherapy, and has provided us with insight into those factors which are significant in every psychological treatment. This method uses rationalization to influence emotions. It attacks the problems directly, and thereby avoids many time-consuming detours. It appeals to the common sense of the patient. Some of its techniques are restricted to the practice of psychiatrists who can spend much time in the treatment of one patient, but some procedures can be applied by any physician who tries to influence his patients.

It has often been held that the therapeutic efficacy of psychiatric work—and likewise, in a great measure, probably of any medical therapy—depends upon the individual physician's personality. The notion persists that the method one uses is of less importance than the person who uses it. There is much to be said for this, when we consider the significant roles which suggestion, confidence, and power of persuasion can play in the course of any treatment, especially of a psychiatric treatment. This influence of a strong personality seems quite logical, since the neurotic person is, above all, one who is discouraged. A self-confident physician, sure of his ability, will therefore have a much more encouraging effect than one who is not so

confident. His power will probably even be overestimated by the patient, to whom the contrast with his own weakness is especially obvious; thus the physician will enjoy a measure of trust which will cause all of his prescriptions to be regarded as salutary. Moreover, everybody unconsciously works towards bringing about that which he expects—be it pleasure or pain; therefore the expectations evoked by the physician have a great stimulating effect.

A therapist with a so-called "strong personality" may much more easily establish close contact between himself and the patient. A great ability to make human contacts is probably one of the reasons for the success of many practitioners. It does not matter so much what else goes on. As long as the patient is in contact with the therapist he feels strong, and hence, is well. How important it is for the therapist to arouse in his patient a feeling of community is also to be seen in the fact that every experienced psychotherapist can observe fluctuations in the success of his work. The reason for this is primarily that he is not equally ready at all times to adjust himself to his patients.

To a certain degree this also applies to the psychiatrist's attitude toward the individual patient. Yet the relationship is quite complex. A strong emotional interest in the patient does not necessarily imply great probability of success. Indeed, the opposite is true: the more interested a psychiatrist is in the cure of a particular patient, the worse is the prognosis. Adler has pointed out repeatedly that in psychotherapy, as in life generally, in order to do the right thing unselfconsciously and with assurance, one must have no preconceptions in one's work. He who is too eager to accomplish a certain task, come what may, is actually afraid of failure and therefore cannot act objectively. Aside from this, a too strong interest on the part of the therapist in the cure of a particular case delivers the therapist over completely into the hands of the patient. The latter then easily dominates the therapist's behavior by rewarding with improvement whatever he regards as agreeable, and by responding to unpleasant information by getting worse. Thus an occasional improvement or relapse in the course of the therapy may signify merely the personal relationships, while the really important point, after

all, should be the patient's change in his attitude toward life, the change of his life-style, so that he can fulfill the demands of the human society.

The outstanding factor in treatment is the elucidation of the situation, the illumination of the field of operation in which the patient lives and within which all his behavior-patterns have a definite meaning. This orbit within which the patient's life runs its course is established in earliest childhood. What matters, therefore, is that the patient would come to recognize his own life-style, the plan according to which he has arranged his life. Reading and studying *Individual Psychology* can play a great role in everyone's self-education and no doubt contributes toward the gradual changing of one's behavior. This process, however, takes place very slowly and has its limitations. In cases of severe disturbances reading alone cannot accomplish a cure. Otherwise we should merely have to hand our books to our patients instead of submitting them to long drawn-out and expensive treatments. Books, of course, may furnish the patient with correct knowledge which he will probably apply in his judging others. He may even learn to recognize and understand more about himself. But not often will he, by himself, be able to see through himself. He will not distinguish between important and unimportant matters, he will claim characteristics for himself which he does not have and will deny that he has others which he possesses to a high degree. All human beings are unwilling to give up their life-plans, to which they are accustomed and which seems to offer techniques in dealing with dreaded difficulties. It is an arduous task, which must be undertaken by the therapist and patient together, to provide the patient with the necessary degree of self knowledge which will enable him to see the misconceptions behind his life-style.

It happens often, during a somewhat superficial procedure, that the range of the patient's life-pattern as an entity is ignored, and that the therapist may be satisfied with explaining—perhaps correctly, but a bit too generally—the patient's present behavior and symptoms. The pointing out of inferiority feelings of lack of social interest, of striving for prestige, of discouragement, of "arrangements," of lack of security, etc., may be correct; but such general formulations will hardly make any great impression on the patient. Though these devices are used differently in every individual case and show innumerable nuances, there still exists the danger that through the poverty of language we may make use of similar formulas for

the most varied individuals. The result will then be that at the end of the treatment the patient will not have seen clearly his own life-style, but will have retained only general phrases which he will repeat on all possible occasions, fitting or not. It is necessary to show the patient his own personal behavior in such a way so that he can actually see himself in his own peculiarities.

In order to make this easier for the patient, and above all in order to simplify for him the mnemonic reproduction of this knowledge, we might search in the life of individual patients for situations which in the life of other persons would hardly be possible, revelations which, acting like a lightning flash, will illuminate the entire life-style. An individual's every slightest action, every behavior symptom, is characteristic of the whole individual, and like a stone from a mosaic, it indicates the style of the whole. From the way a person talks, moves, reacts to certain events, the traits, characteristic of his life-style, can be more or less easily recognized. Thus in the course of treatment we show our patient how to a very great degree his past experiences as well as the entire sum total of his life to date are dependent—and always have been dependent—on himself, on his own life-plan. However, in the life of almost every person situations can be found which not only illustrate how his personality created his experiences, but which also indicate his personal characteristics. The following may clarify this point:

A man suffering from a compulsion neurosis tells the following experience from his eleventh year. At that time he was attending a school, far from his home. He was fairly good in his studies. One day he was called to the principal and shown a letter full of the vilest language, directed to the principal with his, the patient's, name signed at the bottom. He was not asked whether he actually wrote the letter. The principal whipped him and threw him out, although he had been completely innocent and had not had any previous knowledge of this letter. At first glance, it seems as if he must have been quite innocent in regard to this affair. Could the poor boy have helped it if mischievous lads used his name and unjust teachers punished him without reason? We perceive, however, that there is more to this than accident, when we find out that the same boy, at the age of six to seven, in an entirely different environment, often was unjustly punished by his mother, because his playmates accused him of deeds which he had not done at all. These identical experiences

somehow must have been conditioned by his personal behavior. How is that possible?

Even as a little child, he always felt himself to be at a disadvantage and suppressed, at first probably not without justification. He was taken from his home at an early age, while his sister was allowed to stay with her parents. He was ill treated by strangers. At the age of four he felt badly because his aunt, with whom he lived, always gave preference to her own son. He had the feeling of being without rights, and with all the means at the disposal of a recalcitrant child he attempted to make himself disagreeable to others—as, for instance, by soiling himself. His entire environment was against him. With this attitude he returned home, alien to his mother, alien to his brothers and sisters, treated by everyone like a “bad” child, and full of spite towards the whole world. He remembers that his mother once said to him: “You will grow up to be a bum—you’re going to land in jail!” These words, which would not be likely to give a child courage and lead him to the path toward better things, caused quite a peculiar change in him. He thought to himself: “I won’t give you that satisfaction!” From then on he endeavored, almost convulsively, to be good, to fulfill all the demands of his environment, to do nothing that was forbidden; but every time he was engaged in fulfilling a demand he had a curse on his lips. He was filled with revolt against everybody. His outwardly good behavior was nothing but a protest against the opinion which prevailed everywhere about him.

It is obvious what kind of results such behavior would give rise to in school. Everyone discerned the revolt within him. It must have been quite evident from his expression. At the same time he was apparently good and obedient. In class he was not one of the good boys; he was regarded as obstinate and recalcitrant. However, he was not one of the bad boys either; he never was involved in any pranks. One can imagine how the solidarity of the “bad” boys, which can be observed in every classroom, was directed against him. When they played a prank, he was blamed for it, especially so, because, conscious of his innocence, he never ran away. And the boys soon found pleasure in revenging themselves on him because of his goodness. The result was unjust accusations, and so, finally, the letter to the principal came about. If the boy who wrote the letter had signed it with the name of a really good pupil, he would have run the risk of having the teacher not believe the signature; the matter would have been

investigated and the actual writer might perhaps have been found out. Hence the letter signed with the name of the patient, while it was directed against the teacher, was at the same time directed against our seemingly well-behaved patient.

This experience is particularly characteristic of the life-style of this patient. Today, as much as then, this man conceals behind an outstanding decency and conscientiousness a boundless obstinacy and opposition against everyone, especially against all duties within the human community. Outwardly, he is employed by the police department and is thus a representative of public order, of the law. Inwardly, he has a severe compulsion neurosis, which forces him laboriously to wrest out of himself every one of his good actions, the fulfillment of each order. Also, he constantly has obscene thoughts in his head. The opposition to the entire world and at the same time the ambition to appear especially good and fine, dominates his life-plan. These are the identical factors which, as we have seen, were the basis for the childhood experience at the age of eleven into which we have looked.

The exact opposite of this can be demonstrated in a second case. A woman patient tells of an occurrence during her high school years. She had put a needle in the professor’s chair and had thrown stink bombs. Though it became known that she was the guilty one, the whole class was punished—with the exception of her alone. She was generally looked on as the victim, led astray by the others. How did she come to have this experience characteristic for her?

She had an older sister, and even as a little girl she was much prettier than this sister. She was quite pampered by her parents, but always felt her slowness of stature to be something very undesirable. She remembers several occasions when she was not able to do things because she was too little. She now learned, with the help of her attractive appearance, to press parents and relatives into her service and make use of them in the battle against her sister. She annoyed her sister a great deal and always escaped punishment for it. In school she was a good student and was always regarded as well behaved. (She says she regrets this even now.) She had always made an effort to be disagreeable, but at the same time had understood how to gain the sympathy of others, so that she achieved an apparent superiority over other people in a peculiar manner—by doing things which were not right and then avoiding the consequences. She takes a keen delight in every sort of prank. This

offers her, she believes, the only possibility of apparent success. For she feels incapable of any actual accomplishment which might satisfy her ambition. Within her set she is regarded as unapproachable and refined. One would not dare speak of sex in her hearing. At the same time, she likes to read the most vulgar books, is homosexual, and, with an inordinate impudence openly discusses the most daring of adventures. Whenever she becomes surfeited with the timidity which her colleagues—she is a bank employee—show toward her on account of her "refinement," she gives vent to some vulgar remark. Then they all think that in her complete innocence she doesn't realize what she is saying. Here, too, the childhood experience clearly shows the life-style typical of this patient.

Another woman patient had grown up in the country with two older brothers. Parents and brothers adored her. She was pampered by her brothers and regarded with special solicitude because she was a girl. Later she had two younger sisters whom she herself tenderly cherished. No matter how often her parents made the effort to get her to accept the company of playmates of her own age she always rejected it. She did not go to public school. She tells of an experience which clearly shows her life-style, her attitude toward the human community. When the patient was nine years old her mother brought home a girl from the neighborhood, of about her own age, to play with her. The first thing the patient did was to try to find out who was the stronger. In doing this, she wrenched the girl's arm so violently that the arm became dislocated and the girl ran away crying. It could not be any better demonstrated that this patient never felt herself to be an equal among equals, that she acknowledged her fellow human beings only when she was pampered by them or was able to pamper them herself. When her own children had grown up and her life-style became incompatible with the conditions of her life, she broke down because she had not learned to understand any other form of human community and, hence, had always rejected any other type of accomplishment within this community.

Another patient relates the following experience: She went to the theatre with a boy, and was told to be home by ten o'clock. The performance was not scheduled to end until eleven-thirty. In order that she might not be too late, she went home half an hour before the end of the play with the violent disapproval of her boy friend. In spite of this, she

was severely scolded by her mother because she had not come home by ten o'clock. Thereupon she had a fit of rage. She felt that she was being treated unjustly because, after all, she had left half an hour early. This, at first glance, seems like a harmless situation; yet it is very characteristic of this person's life-style. Had she really wanted to comply with the wish of her mother she would have been home at ten o'clock. But if she had wanted to ignore this wish and please her boy friend, she could have stayed until the end. All her life this patient felt that she was an innocent victim of the injustices of others. Here, too, she had endeavored to act as if she intended to obey, without, however, really conforming to the desires of her parents. Thus she was punished, and yet she had not done what she had wanted to do.

This patient has an older sister who, on account of her special competence, makes the patient, who is prettier than she, seem inept and inefficient. Her discouragement regarding her own work was intensified by the constant nagging of her mother. Our patient has always attempted to prove her good intentions without doing anything. She co-operated only to the point of making her good intentions apparent, never, however, fulfilling the tasks expected of her. At the present time she "apparently" is a good wife to her husband, and does not do anything that is objectionable. Yet she is dissatisfied with everything and, of course, frigid, too. Just as she herself is always dissatisfied, she never satisfies anyone else.

These brief examples obviously cannot do justice to the entire significance of each individual case. But they are not intended to be case histories; they merely serve to show how we can illustrate the uniqueness of each individual by reference to particular experiences. We can thus make clear to the patient what we mean when we speak of life-style. We can compare other experiences with these. We can show the patient how he acts everywhere in life according to this attitude. Therefore characteristic experiences, such as these, prove to be effective means of throwing light upon the range within which each individual patient's life takes place.

In the treatment it is important to impart to the patient in a vivid manner the necessary self-knowledge. One really absorbs only that which made a deep impression. The success of therapy depends upon the extent to which the patient recognizes his mistakes in his accustomed attitude toward the human society, in his accustomed goal. It is quite pos-

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SOME ASPECTS OF PHOTOGRAPHY IN MEDICINE

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THE science of photography has grown so rapidly and has branched into so many divisions that it is impossible to devote time and space to more than a few limited aspects of its use. As a means of recording clinical findings when an unbiased, or even a biased, record is desired, photography is indispensable. Also as a means of penetrating into realms that cannot otherwise be investigated, photography is very important. In this respect, two divisions of the science of photography are outstanding, namely, roentgenography and infra-red photography.

Roentgenographs, or x-ray photographs, are exceedingly commonplace; this is due, of course, to their vast diagnostic potentialities. A photograph of the condition of a bone, a space, or a tissue, as revealed by the x-ray photograph, will show many things that the clinician would like to know; this penetration of opaque objects, of living flesh, is a marvel. And as faster x-ray films are produced, as more powerful tubes are developed, and as more efficient fluorescent screens are made, the value of x-ray photography increases.

Orthodox x-ray photographs are made as follows. An x-ray film, consisting of a cellulose nitrate sheet covered on both sides with an emulsion of silver halides and dyes in gelatin is placed in a holder between two screens that fluoresce when struck by x-rays. This holder is mounted on a suitable easel, and the patient stands between it and the x-ray tube. When the latter emits x-rays, dense regions of the body absorb the rays, whereas less dense regions allow the rays to pass through, striking the emulsion that is sensitive to them, and also activating the fluorescent screen, which helps expose the sensitive emulsion. In a darkroom the film is removed, and is placed in a developing solution which breaks down those silver halide particles that have been activated by the x-rays, into small grains of metallic silver. These grains of silver form a black more or less opaque deposit whose density is proportional to the amount of x-rays striking a given area. The film is placed in a fixing bath, which removes the remaining silver halide particles. After a period of washing to remove the fixing chemicals and soluble complex silver salts, it is dried.

Such an x-ray photograph is accepted as the standard of perfection for diagnostic purposes. However, the method has three disadvantages: it is time consuming, it is expensive, and it requires much storage space for the photographs, because they are always the size of the object photographed. If some method could be devised to retain the full diagnostic value of the conventional x-ray photograph, yet eliminate some of the disadvantages, the use of x-ray photography could be extended into wider fields.

Such a method has been developed and consists of photographing a fluorescent screen, and, although

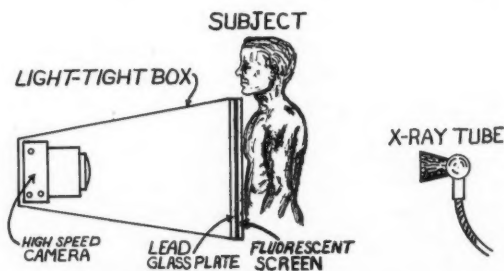


Diagram of apparatus for fluorography. The special light-tight box contains a camera at one end and a fluorescent screen and lead glass plate at the other. The subject stands between the screen and the x-ray tube.

there is some loss of diagnostic value, the lower cost, the convenience, and the small space required for storage, argues favorably for the method. The method is called "fluorography."

The apparatus required in fluorography is illustrated in the figure. A large light-tight box contains a suitable camera at one end and a suitable fluorescent screen at the other. A thick piece of lead glass between the camera and fluorescent screen absorbs all x-rays yet allows the passage of visible light so that the fluorescent image may be photographed. The subject stands as illustrated between the apparatus and the x-ray tube, and the x-rays not absorbed by his tissues cause fluorescence on the screen; this is photographed.

The camera has to have a very fast lens in order to collect sufficient light to activate the photographic film. The speed of such a lens may be illustrated as follows: if the lens of an ordinary box camera is assumed to allow one unit of light to pass through in unit time,

then a lens suitable for fluorography must allow a minimum of sixty-four units of light to pass through in unit time. And of course shorter exposures and denser images are advantageous and may be obtained only if the lens is still faster!

The speed of a lens may be increased in three ways: by coating the lens surfaces, allowing more light to be transmitted and less to be reflected, by increasing the diameter of the lens, and by shortening its focal length (that is, making it a stronger lens, or a lens that bends the rays of light more). The last two ways are employed at the present time to increase the speed of lenses. The resultant lens of maximum speed and minimum distortion is of the type employed with 35 mm. cameras, such as the Leica, Contax, Ektra, and many others. Special lenses have been made for films up to 4 x 5 inches, but the extremely high cost and the difficulties encountered in eliminating distortion at maximum aperture, make such lenses impractical at the present time.

Since fluorography employs a small film, the running expenses are much less than in making conventional x-ray photographs.

Storage of fluorographic pictures is simplified, since each picture is a fraction of the size of the conventional x-ray photograph.

Fluorography may be applied to any region of the body where sufficient contrast between structures exists, and may be applied where contrast may be produced by the use of suitable x-ray-opaque media. It finds its greatest use at the present time in routine examinations of the chest. Schools and entire communities find fluorography useful for surveys to discover and decrease the incidence of tuberculosis. Industrial organizations also find fluorography very useful in routine examination of prospective employees for tuberculosis. Some hospitals now employ fluorography routinely for all new patients. The advantages where many successive photographs are required result from convenience and low cost.

A few papers dealing with the technics, results, values, interpretations, etc., are listed at the end of this essay.

The second specialized division of the science of photography that is of clinical importance is photography by means of infra-red radiations.

Infra-red radiations lie beyond the red end of the spectrum and thus are invisible to the human eye. Infra-red radiations are commonly associated with heat.

In order to photograph objects by infra-red radiations, a special infra-red-sensitive film is employed.

Any ordinary camera may be used providing that two conditions are met. First, a filter must be employed; any filter that eliminates all visible light except variable amounts of red will work satisfactorily. Special filters, such as the Wratten 88a, may be employed, with some improvement of results. And second, the focus must be altered somewhat. Visible light comes to a focus at a point somewhat closer to the lens than infra-red radiations. The film must be moved back somewhat to compensate for this fact. The adjustment varies, depending on the particular lens employed, and must, therefore, be determined for each camera. By focusing visibly on an object at a known distance from the camera, then photographing the object by infra-red radiations, the adjustment at that distance may be measured, and the adjustment at any distance for that particular camera may be computed. When the object being photographed is eight or more feet from the camera and when small apertures are used, the normal depth of focus will make adjustments unnecessary. But when the object is less than eight feet from the camera or large apertures are used, the correct adjustment is imperative for all critical work.

The clinical value of infra-red photographs lies in the ability of the method to record detail lying beneath the skin of patients, detail that is invisible and can not be visualized in any other way. The variation in venation during menstruation and pregnancy, the change in the pattern of veins in eczema and during

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Left: Photograph of the calf of a patient's leg; panchromatic film, no filter, flat lighting. Note that surface texture and the most superficial veins are recorded.

Right: Photograph of the calf of a patient's leg; infra-red film, No. 88a Wratten (red) filter, flat lighting. Note the lack of surface texture and superficial veins; note also the deeper venous pattern not recorded in the photograph made on panchromatic film.

HORMONES IN CANCER

MILTON VAINDER

SEVERAL thousand years ago, the Greek physicians observed a disease of the female breast which caused the overlying skin to become puckered up in striations. Because the shape was so crab-like in appearance, they attached the name Cancer.¹ Today, this malignant scourge is claiming 110,000 lives annually in the United States alone. Because of the increase in longevity due to the many conquests of medical science, we find that the incidence of cancer has taken a sharp rise. From a death rate of 46.8 per 100,000 in 1921, it is now 75 per 100,000, an increase of 62%.²

To the layman, cancer signifies any malignant growth, be it sarcomatous or carcinomatous in nature. And to the average individual this affliction is so dreaded that actual cancerophobias have developed in many instances. There is such an air of finality attached to the word that many hospitals with cancer clinics have found it expedient to change the name of that particular service to "tumor clinic."

Cancer is a process unlike any other biological process. All other processes are designed to an end. Growth, reproduction, inflammation, repair, all have a meaning. Cancer apparently has none. It consists of a purposeless and never-ending cell division. Once started on this process, the cell seems to have gone mad. The growth of an embryo is much faster than that of cancer, but it is always within bounds. What regulates normal growth is not known, but in cancer growth restraint is lost.

A number of theories have been advanced regarding the etiology of cancer. These theories vary all the way from the accusation of worms and parasites to the belief that various intrinsic and extrinsic factors play some esoteric role resulting ultimately in the formation of cancer. Although each of these theories have failed to answer many questions, nevertheless they represent a step forward in the solution of the problem. Ewing says that "To speak of cancer as a single disease with a universal causative factor is inconsistent with medical intelligence."³ The essential cause of tumors is unknown but something is known about certain facts and still more is guessed. It is a great mistake to think that cancer is some great mystery which will be solved overnight; but it is an equally great mistake to view the problem with an air of defeatism.

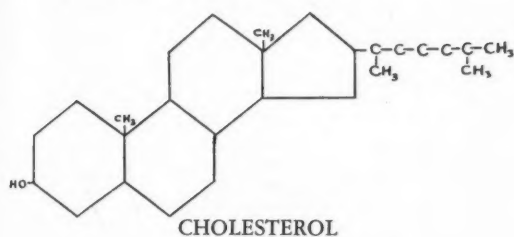
There have been to date three cardinal advances made in the study of cancer. Johannes Fibiger took the first great step when in 1913 he produced carcinoma in the stomachs of rats. In 1915, Yamagiwa produced the first experimental tar cancer. However, these investigators did not know of the part played by certain accessory factors. In 1911, Peyton Rous produced a tumor through the utilization of cell-free filtrates. This work is notable because it indicated that the tumor agent is separable from the malignant cells. The successful transplantation of tumor masses through grafts was then accomplished by Danisch. This seemed, for the time being, to indicate that the tumor formation power was in the tumor cells themselves and not due to the absence of a growth restraint. Yes, indeed, the entire problem is one of physiochemical intrigue involving a multitude of loose threads, and it is a challenge to the men of medicine to take these threads and, through a laborious process of weaving, evolve a pattern which may represent another glorious chapter in the never-ending struggle against disease and premature death.

How do hormones fit into this picture? What enticing threads do they offer, these enigmatic substances which seem to control and guide the physical, and in many respects the mental, life of an individual? Ever since the discovery that certain coal tar products were carcinogenic, the study of cancer has been given new impetus. Substances like benzopyrene and 1, 2, 5, 6, dibenzanthracene were found to be especially potent in causing a hyperplasia of cells without subsequent tumor formation.

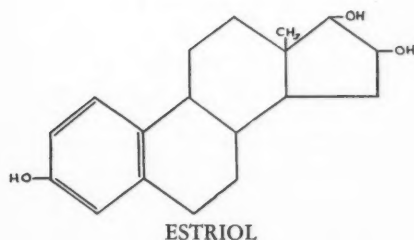
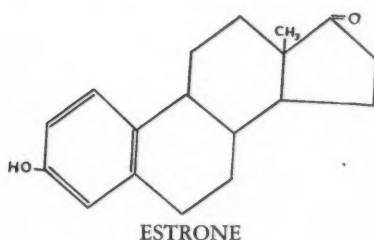
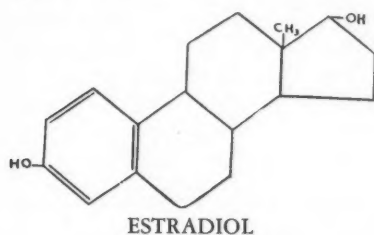
We know that individuals constantly subjected to irritating substances especially coal tar products are prone to develop malignancies providing, as we shall see later, that certain hereditary factors are present. But what about those individuals in whom no history of an extrinsic factor can be discovered but yet develop cancer? Is it possible that perhaps the irritation has always been present but in an innocuous form until converted by some means to a carcinogenic material? Let us observe closely some important clinical and chemical facts.

Sterols are monatomic alcohols widely spread throughout the animal kingdom with fats. They all have the pattern of a cyclopentanophenanthrene. A typical sterol found in the human body is cholesterol

having the following structural formula.

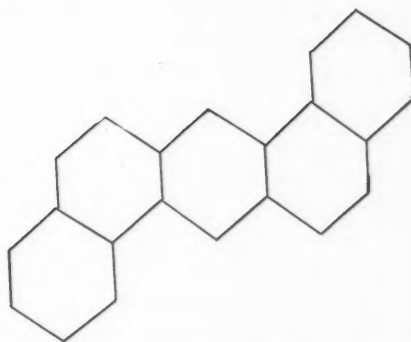


Now, estrogens, the female sex hormones, are oxidation products of the sterols but have the same parent hydrocarbon.

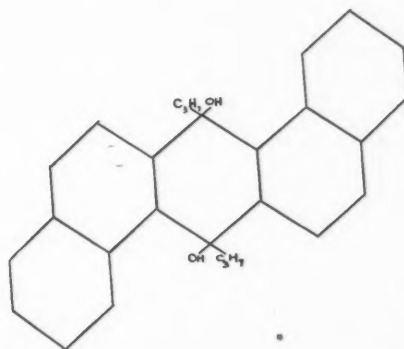


It has been demonstrated experimentally that the hydrocarbon dibenzanthracene is one of the most active carcinogenic substances in coal tar. This hydrocarbon has the following structure: (Top, right).

Slight modifications in structure—the changing of a carbonyl group to a secondary alcoholic group—may markedly change the physiological activity of the compound. Many compounds have been made which can produce estrus; some are but distantly related



to the estrane structure. For example, a derivative of dibenzanthracene corresponds in its activity to the natural estriol.



This substance incidentally shows not only estrogenic properties, but also cancer-producing activities; for, when applied continuously to a mouse over a long period of time, there develops a malignant tumor. The same holds true for methylcholanthrene which may be obtained artificially from desoxycholic acid, one of the acids of the bile.⁴

It is interesting to speculate at this point. We know that normally within the body, the sterols present do not undergo changes which would produce carcinogenic substances. But under a condition of altered metabolism induced by some extrinsic factor, or perhaps under the influence of some intrinsic predisposing factor such as might readily be presented in hereditary susceptibility, might it not then be possible that the harmless sterols be transformed into the deadly carcinogens. Eldin V. Lynn states that there are "Findings of increased amounts of normal and abnormal metabolites, compounds steroid in character, in the urine of patients with adrenal tumors and other carcinomas, indicates an increased or altered metabolism of normally occurring substances.

Patients with carcinoma show a tremendous increase in cholesterol urine output while the blood cholesterol remains normal. The experimental injection of carcinogenic material shows that tumors grow more rapidly in some tissues than in others. However, the type of carcinogen used and the species and sex influence the type and the site of the tumor formation."⁵

From this it follows that perhaps if some sort of substance inhibiting this hormonal action of transgression is found an important step would have been taken toward the elimination of at least one causative factor in the production of cancer. Therefore it is of importance that the significant work of Collip be brought to bear here.

Collip has shown that repeated injections of various hormones (mainly those of the pituitary group) into animals make them less and less sensitive to such hormones. The sera of such animals immunize another animal to the specific hormone under investigation. From this, Collip propounds two theories: either that the hormone extract is an antigen and the inhibitory substance in the blood stream an antibody; or else that the inhibitory substance is a substance of an antihormone kind.⁶

Adrenal carcinoma is associated with excessively high androgen titres although symptoms of virilism may be entirely absent. In these cases too, progesterone is formed and excreted into the urine from which it is recovered as pregnandiol. Since we know that the pituitary exerts a gonadotropic influence, what might be the changes if any in the pituitary in the case of a malignancy of some other structure? Dr. Aura E. Sevringhaus examined the pituitary of a male dead from a chorionepithelioma. The report is: "The anterior lobe of the hypophysis showed features which are characteristic of the pituitary gland of the pregnant female at full term. The acidophils were markedly degranulated and many cell cords were entirely composed of these cells, which are the so-called pregnancy cells."⁷ A decrease in the pituitary potency was also found to be present; whereas normal pituitrin in lmg. doses caused cornification of the rat vagina, 7mg. of the affected pituitrin did not.⁸

The observations made by Dr. Sevringhaus have had some interesting manifestations. The mechanism of nidation in many respects resembles that of a malignancy and yet the growth process has very definite bounds and limitations. Emboli, breaking off from the placenta and lodging in the lungs, fail to

produce metastatic tumors. Why? Mathieu makes repeated mention of the possibility that in the serum of the normal pregnant female there may be substances which are lytic for trophoblastic cells and cell emboli. In view of this relationship, Wickson and others have suggested treating cases of chorionepithelioma with serum from pregnant women or mares.⁹

Twombly and Höcker, thinking along the same lines, decided to treat a patient having a chorionepithelioma by injections of pregnancy serum. The patient, a male, was given 125cc of human pregnancy serum. One week later this patient was given an additional 125cc. The urinary gonadotropic secretion was elevated by the serum injections from 100,000 mouse units to 440,000 units in 24 hours. This high level soon fell back to the pre-treatment level. At which time the patient was then given first 250 and then 175 cc of pregnancy serum. All this was to no avail and the patient expired.¹⁰

Abrahamsen used hormones in the treatment of peptic ulcer. On sectioning the stomachs no pathological changes were observed although endocrinopathies such as three cases of gynecomastia and two cases of temporary impotence resulted. Patients receiving APL and male sex hormone are still in the experimental stage. From his experiments Abrahamson concludes, "Estrogens do not depress the quantity and acidity of the gastric secretions. In fact we find quite to the contrary that they decreased the free and total acidity in those patients who have been followed up. At present we know that estrogens have a definite action on gastric mucosa, whether direct or indirect, only a small part of the character and extent of such action has been determined. There is a preponderance of gastric carcinoma in the stomachs of males being in the ratio of 3:1 as compared to females. In these male patients with a gastric carcinoma excess estrogens have been recovered from the urine."¹¹

Estrogens have been demonstrated in ovaries, placenta, blood, urine, bile, feces, etc. The urine of humans of both sexes and at all ages has been shown to contain female sex hormones possibly indicating extra-gonadal sources of these secretions. While the carcinogenic activities of estrogens are supposedly exerted only on the secondary sex organs, Loeb allows that the carcinogenic hydrocarbons have much more specificity of action and that they may transform any tissue into cancer tissue with which they have con-

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STROPHANTHIN IN CONGESTIVE HEART FAILURE

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STROPHANTHIN therapy in congestive heart failure has been looked upon with distrust by most of the cardiologists in the United States. This attitude has arisen out of a misunderstanding about the drug and also because of a generalization that has been bandied about to the effect that strophanthin in itself has caused many deaths. The last statement is without foundation, and has merely been parroted from mouth to mouth so that the average practitioner is really afraid to use the drug. Digitalis, on the other hand, is held up to view as the ideal agent, which can do no harm, and will achieve the maximum result in all cases of congestive heart failure.

The strophanthins were first introduced by Fraenkel, and were used under that title in the Teutonic states of Europe. Vaquez also introduced the drug to the Spanish American therapeutics as ouabaine, and utilized the drug as prepared by Arnaud's method.

In the briefness of this article it will not be possible to discuss the actual discovery of ouabaine and strophanthin and their pharmacodynamics, but one point must be made, and that is that while digitalis acts primarily on the supraventricular portion of the conduction system, and secondarily on the myocardium, strophanthin acts mainly on the myocardium, and to a much lesser degree by blocking impulses coming through the A-V node. Thus it is seen that, in general, digitalis has its main value in the therapy of congestive failure with a tachycardia, wherein slowing of the rate is the main beneficial effect as it allows the myocardium to recuperate and contract with more effect. Strophanthin has its value in congestive failure associated with a relatively slow rate wherein muscle recovery itself is the main requisite. In acute failure, strophanthin, administered intravenously, gives quicker results than digitalis administered similarly, but of course, as has been stated, each drug has its place, and works most efficiently in the instances noted.

The main purpose of this article is to briefly clarify the methods of administration of strophanthin or ouabaine, which may be considered as synonyms for the same product. The European products called ouabaine and strophanthin are 50% stronger than the American product called strophanthin in the U. S. P. To further differentiate the two, the European product is called strophanthin-G, and the American product

is named strophanthin-K (Kombe). The U. S. P. preparation is the only one easily available to us, and this discussion concerns only the dosage of U. S. P. strophanthin (strophanthin K).

The methods of administration in order of optimum effect are: intravenous, sublingual, oral, and hypodermic. The absorption of strophanthin administered by the oral route is variable in the same patient. The hypodermic method requires a procedure similar to the intravenous technic, and does not give the quick, beneficial effect. Thus we are left with two modes of administration; first, the intravenous method, which is utilized in the emergency and early periods of treatment, and secondly, the sublingual method, which is instituted when the patient is better compensated after having achieved the proper result with the intravenous strophanthin, or which may be used initially in the patient with signs of incipient decompensation.

Before administering strophanthin, it must be ascertained that the patient has not been on digitalis for the previous 10 days, and if he has had digitalis within that period, the initial dosage of strophanthin must be very small, and the increase in the dosage must be gauged according to the patient's reaction, and progress. Strophanthin must not be given where calcium therapy is in progress, and should be avoided if the patient has many ventricular, premature systoles, or has myocardial degeneration associated with severe coronary disease, inasmuch as strophanthin may excite ectopic ventricular rhythms when these conditions are present.

The initial dose of intravenous strophanthin is prepared by placing 0.65 mg. (gr. 1/100) of strophanthin (usually dissolved in 1 or 2 cc.) in a 20 cc. syringe, and then 10 cc. of glucose, saline, or aminophylline (gr. 3¾ in 10 cc.) are added to the contents of the syringe, and the mixture is administered intravenously over a period of 3 to 5 minutes. The drug must be given slowly so that it will have time to affix itself to the myocardium. The beneficial effect is usually noted within one hour, and one half of the first dose may be given at the end of the hour if no effect is noted. The patient is usually given 0.3 mg. in twelve hours on the first day, and then the daily

(Continued on page 29)

REPORT OF A CASE OF PERNICIOUS VOMITING OF PREGNANCY USING PYRIDOXINE HYDROCHLORIDE THERAPY

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PERNICIOUS vomiting is usually classified as an early toxemia occurring in the first trimester of pregnancy. It is characterized by nausea, vomiting, dehydration, ketosis, starvation, hepatic derangement, and neurosis.

The ETIOLOGY of this condition is still unknown, although many theories have been listed in medical literature. The more theories propounded, the more controversial and confusing becomes the issue. This complication of pregnancy usually occurs about once in 176 pregnancies. Some of the etiological theories are listed below:

1) Endocrine Dysfunction-Vorzimer and associates found that women with a pre-existing constitutional abnormality of the endocrine system were prone to develop a toxemia of pregnancy.

2) Allergic Reaction to the patient's own Corpus Luteum. The toxemia starts with the formation of a corpus luteum of pregnancy and symptoms disappear at the time when the gland exhibits retrogressive changes.

3) Reflex stimulation due to other conditions in the body as endocervicitis, retroverted uterus, etc.

4) Metabolic Changes as shown by a disturbance and deficiency in carbohydrate metabolism.

5) Increase of Sensitivity of the mother to the secretion of the chorionic villi or placental extracts. Chorionic cells are found to circulate in the maternal blood stream.

6) Increased amount of estrogenic substances circulating in the blood.

7) Neurosis of the mother is another etiological factor.

The PATHOLOGY is usually that of starvation and dehydration, giving rise to fatty degeneration and central necrosis of the liver. The kidneys also show fatty degeneration especially of the tubules.

The SYMPTOMS vary in degree from the very mild case, in which there is morning sickness with or without vomiting, to a moderate case in which there is nausea all day long without vomiting usually accompanied by some headaches, nervousness, restlessness, and irritability. The sight or smell of food enhances this condition. After the condition progresses to a severe state there will be loss of weight, vomiting many times during the day, and at times accompanied

with severe retching, dryness of skin, marked nervousness and irritability, continuous headaches, and signs and symptoms of dehydration and acidosis. There may or may not be signs of jaundice except in severe cases. The vomitus first will be a clear fluid, then a bile stained liquid of thin pea-soup character, and finally the admixture of new or old blood, the latter producing a so-called coffee ground vomitus. Usually the patient is asymptomatic while she sleeps.

The skin becomes very loose so that it may be picked up in folds. When dehydration is present, one sees all the concomitant signs of the condition such as: dry coated tongue, parched and cracked lips, anxious facies, sunken eyes, and person shows a picture of marked misery and prostration. The pulse rate is usually very high, 110 or over in moderate and severe cases. The patient finally may terminate into a comatose state.

The laboratory findings are insignificant in mild cases, but in the more severe ones the urine will show acetone, diacetic acid, and albumin. The blood will show a hypoglycemia, an increase in the non-protein nitrogen, and an increase in the icteric index. Usually the CO₂ combining power of the blood will have normal values.

The usual TREATMENT for a mild case is to have the patient eat dry crackers in the morning on awakening, and increase the carbohydrate content of the rest of the diet. She should eat small amounts of food throughout the entire day. This may be supplemented with some sedative such as Luminal grains 1½ two or three times a day. In the more severe cases^{3,4} where the physician has to resort to hospitalization of the patient she should be placed into a dark room, isolated, placed at complete bed rest, and bowels kept open with occasional enemata. She is starved for twenty-four hours, and given 4000 cc. of 5% Glucose in saline intravenously for the first twenty-four hours. After this regime, we administer small sips of carbonated water and gradually the diet is built up. In this procedure mild sedatives are given. Some administer insulin with the glucose therapy.⁵ Willis⁶ and his associates were the first to administer pyridoxine hydrochloride to patients with pernicious vomiting of pregnancy who had failed to respond to all the other forms of treatment. Endocrine therapy has also

been used but the results were not gratifying. When conservative medical measures fail to cure the toxemia then the only course remaining is to empty the uterus.

REPORT OF A CASE

A white female, age forty, Gravida iii, Para ii, entered the hospital giving a history that she is three and a half months pregnant and has been having nausea and vomiting for the past two months. This nausea and vomiting was more severe upon arising in the morning and less acute during the course of the day. It had no relation to the intake of food. This condition progressed and for the past two weeks she had not been able to retain any fluids or food. One week before admission she vomited dark brown material. There were also complaints of headaches, dizziness, and irritability. Two days before admission she felt sharp, severe pain in the upper right abdomen. This pain radiated to the back in the scapula region. This time she vomited a dark vomitus that was brownish-green in color. Her pain was continuous but varied in intensity.

In her *past history* there were no significant facts. The other two pregnancies were normal. One child died at the age of one year from pneumonia. The other child is living and healthy. There were no miscarriages or abortions. The patient's menstrual periods were always regular. The last one was three months ago. Venereal disease denied. *Family history* was negative.

Physical Examination revealed a short, stocky woman who was acutely ill, oriented, and of good sensorium. Heart and lungs were negative. Abdomen was enlarged. Uterus was palpable up to the umbilicus and was round and firm. The liver was not tender and not enlarged. The kidneys and spleen were not palpable. The genitourinary system was negative for pathology.

Laboratory examination revealed normal hemoglobin, 65% Sahli; normal red cell count which was 3,900,000; and a moderate leucocytosis with a 19,400 total white count consisting of 92% polys and 8% lymphocytes. Urine examination was negative except for a trace of albumin, one plus acetone, and crystals consisting of urates. The sp.gr. was 1.026. The blood chemistry revealed a moderate increase in N.P.N., 45 mg.%; uric acid 3 mg.%; creatinine 2 mg.%; urea nitrogen 25 mg.%; and icteric index 8. Vandenberg showed normal values. X-ray examination of the gallbladder revealed a pathological bladder.

Patient was taken to the operating room and the gallbladder was incised and drained, but the patient

still complained of nausea, vomiting, and inability to retain food or fluids. The gallbladder was draining very well. Temperature, pulse, and respiration were normal. Conservative therapy was used such as intravenous 5% glucose solution and saline, sedation using luminal, and absolute rest in bed. This condition progressed for three days post-operatively without any signs of improvement. During this time the patient was under care of the author (JLH). On the fourth day post-operatively pyridoxine hydrochloride was given and this was supplemented with a soft diet which was increased until the patient was able to retain a normal hospital diet. Injections were continued every other day, using 50 mgms. per day for six doses.

On the fourth day of instituting this treatment the patient showed no evidence of dehydration or acidosis by clinical and laboratory examination. At the end of the second day patient was able to retain food and fluid and thereafter the general welfare of the patient improved. Obstetrical consultation showed that the baby was viable. The operative incision healed and patient was discharged from the hospital as cured.

Conclusion. This case illustrates the use of pyridoxine hydrochloride in massive doses for the treatment of hyperemesis gravidarum. In the above case the following regime of therapy was instituted:

First Day—100 mgms. of pyridoxine hydrochloride was injected intramuscularly. This was supplemented by small quantities of fluid given orally. Since the dehydration and acidosis was marked, then in addition to the above, intravenous fluids consisting of 5% glucose in saline (2,000 to 3,000 cc. per day) was given.

Second Day—50 mgms. given intramuscularly. At the end of this day semi-solid foods were added to the diet.

Fourth Day—50 mgms. was given intramuscularly. Diet was given according to patient's tolerance.

Sixth Day—50 mgms. given intramuscularly.

Eighth Day—50 mgms. given intramuscularly. At the end of this time the patient was well on the way to recovery and all signs and symptoms of hyperemesis gravidarum had disappeared.

(Continued on page 29)

Aboriginal American medicine had many novel aspects. At random—In anatomy, the Indians were said to be able to distinguish between arteries and veins and the "jugular" and femoral arteries and the aorta were given a name meaning "having no ears", because, when severed, they did not heed any remedies.

PENICILLIN

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ANY elementary consideration of biology will immediately impress upon one the antagonism existing between different species of animals not only involving the obvious predatory habits of animals high in the phylogenetic tree, but ranging down to the single cell species. Since the single cell species cannot depend upon the protective equipment of teeth and limbs they have developed other mechanisms by which to destroy rivals. These mechanisms are mainly of a chemical nature and are often more or less specific in their action. It is not the purpose of this article to discuss all types of antagonisms but to deal with one in particular which has rightfully gained the attention of the medical profession because of its usefulness as the therapeutic agent.

In 1929, Fleming became aware of a strange phenomenon while working with certain staphylococci. A plate which had become contaminated with a mold showed no growth of the bacterium in the vicinity of the mold. He identified the mold as *Penicillium notatum* and found that it elaborated a principle easily demonstrable in a rough filtrate from a broth culture of the mold, and that it had a more or less specific inhibitory power against staphylococci. He published these findings, but as sometimes happens, an important discovery gets buried in the literature. This was primarily due to the fact that Fleming discovered the specificity of "penicillin," as he called it, for Gram positive organisms and included it in media for the isolation of Gram negative bacteria, such as *Hemophilus pertussis* and *Hemophilus influenzae*. These organisms are recognized as difficult of isolation under ordinary circumstances because of their fragile character and fastidious growth requirements.

Because of the progress of work in this country on the therapeutic action of other antibiotic agents, such as gramicidin and tyrothricin, penicillin was reinvestigated by a group of research men at Oxford who published a remarkably complete article on penicillin in 1940. They not only confirmed its anti-biotic character discovered by Fleming, but went on to describe methods of purification, its innocuous character for animals in this state, and its superiority as a therapeutic agent for infectious diseases caused by staphylococci, streptococci and pathogenic anaerobes. Since the appearance of this work four years ago, great

impetus was given to the study of penicillin, especially in this country and in England, with the result that we now have at our disposal a great deal of information about penicillin in a relatively short time.

Penicillium notatum is a mold which is closely related to the common bread mold *P. glaucum* with which most people are familiar. It grows well at ordinary room temperature both as a surface pellicle and in the depths of the medium. The growth takes place on a relatively simple synthetic medium composed of sodium nitrate, glucose or lactose, ferric sulfate, magnesium sulfate, monobasic potassium phosphate and potassium chloride dissolved in water. On such a medium placed in any size flask, but to a depth not to exceed two centimeters, the mold grows as a pellicle, first appearing as a white blanket and later, when spores begin to form, it has a gray-green color. The pellicle in time forms numerous folds, in an attempt to increase surface exposure. The fluid beneath the pellicle remains clear and transparent but as growth progresses begins to take on a straw color (glucose) or a lemon color (lactose). The mold may be filtered off with ordinary filter paper and in the resulting fluid will be found the active therapeutic principle which has come to be known as penicillin.

The presence of penicillin in the filtrate may be demonstrated in two ways; either by the direct mixing of the filtrate with a culture of a susceptible staphylococcus or by the agar cup plate method. The latter means is most commonly employed for standardization, and concerns itself with placing a one centimeter long glass cylinder into an agar plate which has previously been seeded with the organism. The penicillin is placed in the cylinder and the plate incubated. If antibacterial activity is present, at the end of twenty-four hours there will be present a zone of inhibition about the cylinder in which no growth takes place due to the diffusion of the principle out into the surrounding media. Based upon this method, the Oxford group have developed an arbitrary unit of penicillin variously referred to as the "Oxford Unit" or "Florey Unit." This unit is defined as "that amount of penicillin which when dissolved in 50 cc. of veal infusion broth will just inhibit the growth of the test strain of *Staphylococcus*." It should be made clear that at present the units spoken of in this country and

those mentioned in England are not exactly the same because of differences in test strains of Staphylococci and differences in the composition of the media used for its growth. These differences as well as differences in temperatures of incubation and length of incubation period will make for differences in unit value and therefore discrepancies exist.

The potency of penicillin varies with the state of its purification. The procedures developed by the Oxford group have been followed more or less in this country and are concerned with extraction with either amyl acetate, chloroform or ether in the cold at pH 2. This is followed by adsorption to charcoal and elution with a phosphate buffer. The addition of sodium, calcium or barium will result in the formation of these salts of penicillin. Evaporation of the fluid by rapid freezing in vacuo results in a yellow fluffy powder which is the penicillin ready for use. A further purifying process has been used but is not essential. This is to further subject the solution to chromatographic adsorption through a column of alumina-gel resulting in a high concentration of penicillin in the second zone with most of the impurities removed in the first zone. However, this method has not lent itself to commercial exploitation because of excessive time and expense and is therefore not used except experimentally. Penicillin in the crude state, that is, in the original medium may have a unit value of one to two per cc. whereas, in the purified state may have values from 250 units per milligram to 2,000 units per mg. of dry powder.

More recent advances in the preparation of penicillin have been concerned with the inclusion in the medium of 5% corn steeping liquor* which has been responsible for two important changes. One is that it has decreased the time of incubation before the penicillin may be harvested from 14 days to about 7 or 8 days because of the rapidity of the growth. Second, the titre of crude penicillin in the initial filtrate is 5 to 15 times as great as in the original type of media used by the English workers. Another advance has been the growing of the mold in the depth of the culture medium rather than on the surface. This has the advantage of allowing the cultivation to be carried out in large rotating drums rather than in myriads of flasks for which much greater space would be necessary, since even with the most advanced technic from 25 to 50 liters of fluid media yield only 1 gm. of the dry salt.

*In preparing corn for starch production, it is first immersed (or steeped) for 24-36 hours in a 0.1% aqueous solution of sulfur dioxide. The steep water is drained off and concentrated to a thick syrup. This syrup is called "corn steep liquor."

In order for any chemotherapeutic agent to be of value in infectious disease we must know two things about it. First, its anti-bacterial activity and second, its harmlessness for living tissue in effective concentrations. In regard to the first point, it is not unusual for reports to appear that penicillin inhibits the growth of organisms in concentrations of 1:30,000,000. This figure will of course vary with different organisms. It must be admitted, however, that this figure is startling in itself without any correlation to the action of other anti-bacterial agents which it far exceeds. With regard to the second criterion, it may be stated that the crude product is somewhat toxic to animals but the purified product is practically devoid of pyrogenic substances for animals in dosages far greater than those used therapeutically for man. Furthermore, the toxicity index of penicillin for leucocytes is 1:250 which is one of the lowest recorded for any therapeutic agent. It may also be pointed out that the antibacterial activity of penicillin is not interfered with whether it acts in the presence of saline, pus, blood or edema fluid.

There have been a number of reports in the literature concerning the therapeutic effect of penicillin in various diseases. From the Mayo Clinics are recorded startling cures of staphylococcus cellulitis with septicemia in cases ordinarily considered moribund. Not only the fact of the cure is remarkable but the startling rapidity with which it takes place. It is not unusual to find the patient well on the road to recovery 24 to 48 hours after beginning penicillin therapy. In one of the original articles from Oxford are included case reports concerning gas gangrene with excellent therapeutic results. Recent reports have confirmed earlier ones concerning the therapeutic effects on sulfa-drugs-resistant gonorrhea cases. Individuals afflicted with this disease and resisting treatment with various sulfa compounds were found to have complete cessation of symptoms and signs in 24 hours following intravenous administration of penicillin. The cures were accomplished in 95% of the attempts made. Most recent are the reports on the use of this agent in syphilis with very hopeful results; however, the authors are cautious because of the chronic and notoriously relapsing character of this disease.

Among the diseases which do not respond to treatment may be listed subacute bacterial endocarditis. Initial reports were very disappointing, resulting in little or no improvement during time of administration with a relapse after the drug was withdrawn. However a recent article mentions the apparent cure of

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THE USE OF SIMULTANEOUS EQUATIONS TO BALANCE CHEMICAL EQUATIONS

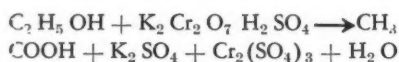
MILTON VAINDER

Most of us have learned to balance chemical equations by

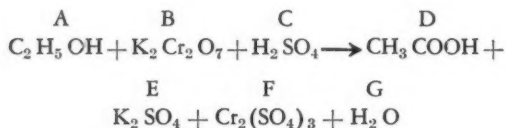
- (1) The hit or miss method.
- (2) Oxidation-Reduction method.
- (3) Electron Valence method.

The first method works out very well in some of the simple inorganic reactions in which the relationship of the reactants and the products is very obvious. In some of the more complex inorganic reactions and particularly in most organic equations, a definite method must be pursued in order to end with a balanced equation. In some cases method (2) works excellently and in others method (3) seems to be the only one which achieves results. An analysis of these methods will reveal that they depend mainly on the supposition of certain electronic relationships in which electric charges are either "loaned" or "borrowed." Hence in many of the reactions involving especially the organic compounds in which the carbon atom "shares" electrons, these methods are very likely to cause the user some confusion. The following method presented is based on fundamental mathematical principles and involves the use of several unknowns all standing in a definite known relationship to each other thus necessitating an accurate conclusion.

As an example let us choose the reaction in which ethanol is oxidized to acetic acid. The unbalanced equation is:



We designate $\text{C}_2\text{H}_5\text{OH}$ by the letter *A*; $\text{K}_2\text{Cr}_2\text{O}_7$ by the letter *B*, and so on. Now we have the following:



Now, we know that all the elements on the left side must equal quantitatively all the elements on the right side. Therefore, starting with *carbon*, which is the first on the left side, we have the two carbons in $\text{C}_2\text{H}_5\text{OH}$ equalling the two carbons in CH_3COOH . Hence, $2\text{A} = 2\text{D}$. Similarly, we have the six hydrogens from $\text{C}_2\text{H}_5\text{OH}$ plus the two hydrogens

from H_2SO_4 necessarily equal to the four hydrogens in CH_3COOH plus the two hydrogens in H_2O , or: $6\text{A} + 2\text{C} = 4\text{D} + 2\text{G}$. If all the elements are handled in the same manner, we then have:

- 1) $2\text{A} = 2\text{D}$
- 2) $6\text{A} + 2\text{C} = 4\text{D} + 2\text{G}$
- 3) $\text{A} + 7\text{B} + 4\text{C} = 2\text{D} + 4\text{E} + 12\text{F} + \text{G}$
- 4) $2\text{B} = 2\text{F}$
- 5) $2\text{B} = 2\text{E}$
- 6) $\text{C} = \text{E} + 3\text{F}$

These equations are now solved simultaneously.

$$\text{A} = \text{D}$$

Substituting *A* for *D* in 2)

$$6\text{A} + 2\text{C} = 4\text{A} + 2\text{G}$$

$$2\text{A} + 2\text{C} - 2\text{G} = 0$$

But since $\text{B} = \text{E} = \text{F}$ (4 and 5)

$$\text{C} = 4\text{F} = 4\text{B} = 4\text{E} \quad (6)$$

And substituting in 3)

$$\text{A} + 7\text{B} + 16\text{B} = 2\text{A} + 4\text{B} + 12\text{B} + \text{G}$$

Adding

$$\text{A} - 7\text{B} + \text{G} = 0$$

$$\text{A} + 4\text{B} - \text{G} = 0$$

$$2\text{A} - 3\text{B} = 0$$

$$\text{A} = 1\frac{1}{2}\text{B}$$

$$\text{G} = 11\frac{1}{2}\text{B}$$

$$\text{D} = 1\frac{1}{2}\text{B}$$

$$\text{C} = 4\text{B}$$

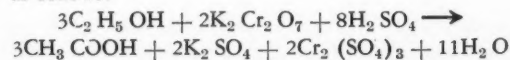
$$\text{E} = 1\text{B}$$

$$\text{F} = 1\text{B}$$

If $\text{B} = 1$ then

$$\left. \begin{array}{l} \text{A} = 3/2 \\ \text{B} = 1 \\ \text{C} = 4 \\ \text{D} = 3/2 \\ \text{E} = 1 \\ \text{F} = 1 \\ \text{G} = 11/2 \end{array} \right\} \times 2 = \begin{array}{l} 3 \\ 2 \\ 8 \\ 3 \\ 2 \\ 2 \\ 11 \end{array}$$

and the new balanced equation may be written as follows:

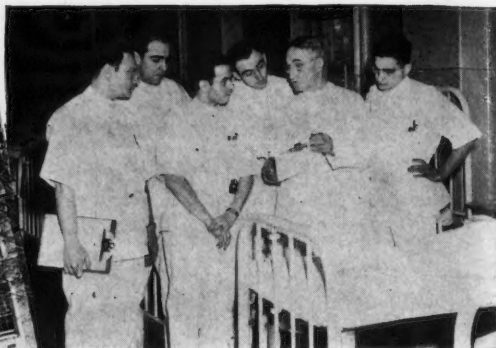


The Class of December 1943

HOME ADDRESS

INTERNSHIP

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Oak Forest

BY BURTON ROCKLIFF AND MARVIN LERNER

The present Junior Class has the distinction of being the first group of students in the School to participate in a clinical program that is probably unique in medical education in this country. The entire class has been divided into three sections, each of which will serve a full-time resident clerkship at The Oak Forest Infirmary and Hospital, the period of each clerkship lasting three months. The valuable training afforded by such an arrangement can scarcely be overestimated.

The Oak Forest Infirmary and Hospital is a county-administered institution of approximately 2,500 beds in the general wards and 500 beds in the tuberculosis wards. It is located in Oak Forest, Illinois, on several acres of well-landscaped, wooded grounds. The buildings are modern in design, are limited to two stories in height, and are connected by enclosed passageways. The wards have three-way exposures, are sunny and well-ventilated, and are of convenient length.

The General Supervisor of the institution is Mr. Frank Venecsek, and his assistant is Mr. William E. Quinn. Dr. O. C. Schlack is the Acting Medical Supervisor in the absence of Dr. Eugene J. Chesrow who is in the Army. Dr. Zajdzinski is the Assistant

Medical Supervisor, who in cooperation with Dr. Paul H. Wosika, Associate Professor of Medicine, directs the student teaching program.

The students are divided into groups of threes and fours, and are assigned to specific services under the supervision of resident physicians. Each student spends three weeks in Male Receiving Ward and two weeks in Female Receiving Ward. One week in Dispensary, four weeks in the Hospital Wards, and two weeks in the Tuberculosis Hospital complete each student's twelve-week clerkship. During this time, they are also instructed by senior supervisors and outside consultants.





Above, left to right: View of the buildings. A resident physician discusses an interesting case with a group of students. Physical examinations are done by students. Another view of the buildings and grounds.

Right: A cardiac ward. Below, left to right: Two students read up for their case reports in their room. Lunch and discussion in the cafeteria.

Each student is required to write up a certain minimum number of histories and physical examinations, and, in addition, must submit a minimum of eight special case reports selected and assigned by the resident staff. These case reports are required to be extremely complete, and must include abstracts of pertinent current literature.

This clerkship provides excellent experience for our students, and familiarizes them, while still in their third year, with diagnostic techniques, methods of treatment, and general hospital routine. It is a notable addition to our facilities, and marks a milestone in the continued progress of the School.



THE QUARTERLY



Above, left to right, first row: Dr. O. C. Schlack, Acting Medical Supervisor; William E. Quinn, Assistant General Supervisor; Frank Venecek, General Supervisor. Second row: Dr. Joseph Moles, Dr. W. Thomas, Dr. Feliciano Hicaro, Dr. J. P. Poska, and Dr. Joseph De Revney, resident and attending physicians.

Alumni News

1903—Dr. Theodore C. F. Abel is specializing in laboratory diagnosis at the Abel Laboratories, Inc.

1906—Dr. Albert Howard Carter is engaged in general practice and industrial surgery in Chicago. In Dr. Carter's own words, he is "going strong."

1908—We are grateful to Dr. L. T. Gumberts for his kind wishes. We wish him much success in his practice in Eye, Ear, Nose and Throat in Chicago.

1909—Dr. James C. McLallen is engaged in general practice in Chicago.

1914—Dr. J. Gould Barker is a staff member of the Belmont Hospital and the North Avenue Hospital. He is engaged in general practice and industrial work.

1918—Dr. Joseph A. Cunningham is Health Officer at the Provident Hospital in Chicago. He is also Attendant at the St. Joseph's Home for the Friendless.

Mrs. Seifert writes us that Dr. Edward A. Seifert has been in the army since March 15th. Dr. Seifert is now at the head of the 5th Convalescent Hospital somewhere in New Caledonia. He holds the rank of colonel and has been a member of the Army Medical Reserve Corps since 1921. The best of luck to Colonel Seifert.

1921—Dr. John A. Ante is engaged in general and industrial practice in Chicago. He is also physician to the Santa Fe and Grand Trunk Railroad Lines.

1922—Dr. Audley F. Connor is specializing in renal vascular diseases in Chicago.

1924—Dr. Green Johnson informs us that he is taking postgraduate courses in Traumatic Surgery at the Cook County Graduate School in Chicago. His present work is Gynecology.

1926—Dr. Henry Higgins writes us that he is engaged in general practice in Chicago.

Dr. Arthur A. Levisohn is doing Medico-legal work in Chicago.

1928—Captain Maurice M. Knopp received his promotion December 6, 1943. Captain Knopp is stationed "somewhere in the Aleutians."

1930—Dr. Paul A. Davis is busy with Industrial Surgery in Chicago

Captain Roger D. Shafer is stationed at Cushing General Hospital in Framingham, Mass. He writes

that Captain Max Hirz, who was with him in Tennessee, is now overseas. Many thanks to Capt. Shafer for his kind criticism.

1932—We are sorry to report that Dr. Alexander E. Kaufman died on March 9, 1944 at Augustana Hospital.

We are pleased to hear that Dr. Otto Koluvek is Health Commissioner of Berwyn, Illinois. He is also Chief Medical Examiner for the Czechoslovak Society in Berwyn.

1933—Lieutenant Alfred A. Munn has sent us a very interesting letter from India. He enclosed a newspaper clipping concerning the prevalence of disease in India. According to Lt. Munn, almost every animal and insect in India is a carrier of disease. The country will be a rich post-war field for enterprising medical men. We are happy to hear that American soldiers are well provided for as to medical care. Lt. Munn's address is Lt. Alfred A. Munn, M.C.; Surgeon 3rd Bn. Med. Det., 468th Qm. Trk. Regt., A. P. O. 4823 N. Y. C.

Best wishes to Dr. Frank Brodsky of Chicago. Dr. Brodsky is in general practice.

Many thanks to Dr. Francis M. Darling for his comments on the *QUARTERLY*. Dr. Darling is practicing in Chicago.

Dr. H. Inouye informs us that his new address is P. O. Box B, Florence, Arizona. We thank him for his compliment to the *QUARTERLY*.

1935—Dr. Herman Corren has received his commission as lieutenant in the U. S. Army Medical Corps. Lt. Corren is at present stationed at Carlisle Barracks, Pa.

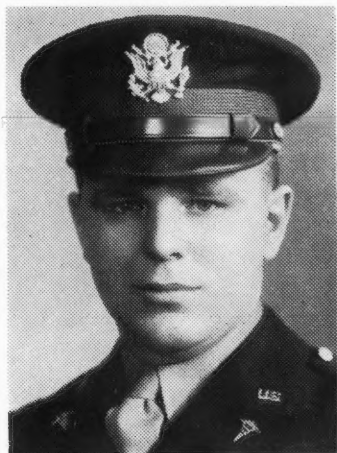
Our congratulations and best wishes to Dr. and Mrs. A. J. Podolsky on the birth of their daughter, Catherine Ann.

Dr. C. G. McGary is specializing in cardiology and E. K. G. in Chicago. Dr. McGary received his honorable discharge from the Army Medical Corps in February, 1944. Previously, he was on active duty for sixteen months, the last two of which he spent at the Army School of Medicine, College of Roentgenology. He was stationed for fourteen months with an armored division in Kentucky.

Dr. I. B. Kapusinski is engaged in general practice in Chicago.

Dr. Marshall D. Kerwin sent us a personal note saying he was still "dabbling in photography." Rather an expensive hobby these days, Dr. Kerwin; and do you happen to have a roll of V620?

1937—We are deeply indebted to Dr. James E. Seagrave of Oak Park, Illinois, for his efforts and assistance in our behalf. We hope to justify his kind extension of good will. Dr. Seagrave is doing special work in fractures.



LT. FRANK J. KOLUMBAR

We deeply regret to announce that Lt. Frank J. Kolumbar was killed in action on February 21, 1944, during the invasion of Eniwetok Island in the Marshall group. Dr. Kolumbar graduated from the School in June, 1941, and received his commission in the Army on October 21, 1942. He is the first graduate of the School to lose his life in the present conflict. His former classmates and others who knew Dr. Kolumbar will be greatly saddened by the news of his death. We extend our deepest sympathy to his widow, Mrs. Josephine M. Kolumbar, and his parents Mr. and Mrs. Frank Kolumbar.

1943—Dr. Harold M. Spinka writes that he is engaged to Miss Dorothy Wellman of Chicago. The engagement was announced last New Year's Day.

Sgt. H. Kaplan has written us from England where he is stationed. Sgt. Kaplan volunteered for service when he was a sophomore. He was to have graduated with the December, 1943 class. Sgt. Kaplan intends to resume his education after the war; meanwhile, he would like to hear from his classmates. His address is 662 Clr. Co., 36325450, A. P. O. 230 c/o P. M., N. Y. C.

Research has brought forth the fact that the caduceus as now used, the two serpents entwined about a staff, was really an ancient symbol of peace carried by heralds or ambassadors, or placed on merchant vessels. Wings on the staff were added symbols of Mercury, the ambassador of the gods. The proper Aesculapian symbol should be a staff with but one unwinged serpent.

In his book "Who Gave the World Syphilis?" the Haitian myth, R. C. Holcomb, M.D. Capt. Med. Corps U.S. Navy Retired (1937), shows up the holowness of the theory that Columbus and his crew brought the disease from the Americas to Europe. The theory was established by Ruiz Diaz de Isla (1539), who believed that the drug, guiacum, which was used at that time in syphilis therapy, was a plant native to Porto Rico and Haiti, and was placed there by Divine Providence for remedying disease which originated there as punishment for sin.

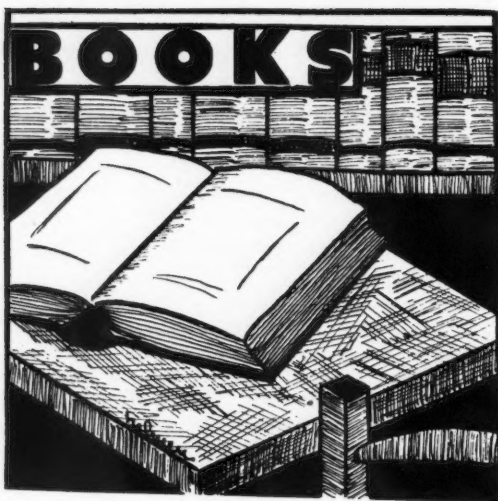
Holcomb, after re-translation of the original edition, found nothing else to support Ruiz's assertion except this theory about guiacum.

WILLIAM COWPER (1731-1800)

His first suicidal attempt at thirty-two might have succeeded, but the garter by which he was hanging broke and brought the laundress to his rescue. He made other attempts at ending his life; he suffered recurring cycles of profound depression and hypomania, and finally succumbed to dementia at seventy. This mental instability influenced his work. For instance, in his famous poem of John McGilpin's ride there is evidence of that strange elevation of mood so characteristic of the confirmed melancholic.

* * * *

The best doctors in the world are Doctor Diet, Doctor Quiet, and Doctor Merryman.—Jonathan Swift.



HEALTH EDUCATION ON THE INDUSTRIAL FRONT; The 1942 Health Education Conference of the New York Academy of Medicine; 63 pages. Columbia University Press, 1943.

This little book of 63 pages contains 7 addresses by individuals well known in public health and industrial hygiene. The subject matter may be gleaned from the titles such as, "The Wartime Industrialization of the Community and its Health Implications," "Food and Nutrition in the Home and in the Work Place," "Disease and Handicap Detection and Control in Industry," "Mental Problems and Morale in Industry" and "Educational Methods and Control of Accidents in Industry."

Obviously it is impossible to give little more than generalities in treating such large subjects in so little space. However, certain lessons are pointed out which should be well-learned by the medical profession. They may be briefly stated to consist of the following; a large proportion of our population is industrialized which means that a certain percentage of the working population is exposed to industrial hazards 30% to 40% of their waking time; because of the advances that have been made, workers are being exposed to relatively unknown hazards which require adequate study; the proper approach to industrial medicine is to consider it from the preventive point of view rather than therapeutic as has been the case in the past; that industrial workers have personal problems which interfere with efficiency and that it is a function of the administrative arm of the industry to help with these problems where possible.

The reviewer's own impression of this problem is that if we are to become as public health conscious as present trends indicate, it is apparent that an extremely important point of attack is on the industrial front where a large proportion of our most productive citizens can be met and their health adequately watched.

For those who wish to get a bird's-eye view of the magnitude and importance of occupational hygiene—this little book is recommended.

IRWIN S. NEIMAN, PH.D., M.D.

THE HOME MEDICAL BOOK. Royal S. Copeland—John C. Winston Co., Phila.—'42.

There have been many attempts made to supply the layman with a reference which could avail him in emergencies and accidents. Dr. Copeland has succeeded rather well in producing another one of these handbooks, and has incorporated a few worthy features of his own.

In a concise outline at the beginning of each chapter, the senator-doctor-author states the essentials of lay treatment in the particular emergency. He then goes on to discuss in greater detail the symptomology and etiology.

Among the topics handled adequately by Dr. Copeland are: First Aid, emergencies, common ailments, children and their care, general advice for hygienic living. He includes many illustrations helpful to the layman: exercises, emergency splints and bandages, etc.

Dr. Copeland has written this book because of the wartime scarcity of medical men. It is his intention that this book could be utilized by the people to cut down on the number of unnecessary calls for the doctor. It is certainly worthwhile for medical men to skim through it to evaluate the usefulness of recommending it to a patient.

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ART EXHIBIT

The AMERICAN PHYSICIANS' Art Association will have its seventh annual exhibit at the A.M.A. convention, Stevens Hotel, Chicago, June 12-16, 1944.

Through the courtesy of Mead Johnson & Co., Evansville, Ind., there will be no fees for hanging and no express charges either way. The type of art to be exhibited includes personal work of the following types of medium: oil portraits, oil still life, landscapes, sculpture, water color, pastels, etchings, photography, wood carving, leather tooling, ceramics and tapestries (needle work). All pieces should be sent preferably by railway express collect, automatically covered with \$50 insurance.

Exhibitors should send now for entry blanks to Dr. Francis H. Redewill, Secretary, A.P.A.A., Flood Building, San Francisco; one entry blank should be used for each medium in which it is desired to exhibit.

There will be about 100 trophies, including medals and plaques.

CORRECTION

In the article *Spectroscopy of Proteins, Free and Insitu* by Dr. Richard G. Roberts in the October issue of the QUARTERLY, appears the term "spectrophotometer." This is a trade name, and the more general term for the type of instrument referred to is "spectrophotometer."

THOMAS DE QUINCEY (1785-1859)

A frail Oxford student of nineteen walked into a London apothecary's shop and purchased a phial of "tincture of laudanum." This was De Quincey's first acquaintance with opium, which had been recommended to him for neuralgia. Besides opium addiction, he suffered from a psychosis, from tuberculosis, and colonic toxins, the result it was believed of copious tea drinking. "The Confessions of an English Opium Eater" is said to have introduced many subsequent addicts to opium, even to the present day.

Faculty Notes

Miss Marguerite E. Campbell has been made Assistant Professor in Library Science.

Dr. Piero P. Foa, recently appointed Assistant Professor of Physiology, comes to The Chicago Medical School in possession of a most remarkable and brilliant academic background.



DR. PIERO P. FOA

Born in Italy, Dr. Foa received his M.D. degree in 1934 at the University of Milan, where he later served as instructor in Biological Chemistry and received his Ph.D. in chemistry in 1938. He then served a year at the University of Pavia as Assistant Professor of Physiology.

In 1939 Dr. Foa came to this country and went to Yale University as a Research Fellow in Physiology. He transferred to the University of Michigan as a Research Fellow in Surgery, and later as a Research Fellow in Medicine, after which he came to our School.

During his many years in research here and abroad, Dr. Foa has become interested in a variety of subjects, the physiology of the bone marrow, carbohydrate metabolism in muscle, hypertension and the substances involved in the vitamin B group being only a few. Recently, he has had papers published in the Archives

of Internal Medicine, Journal of Clinical Investigation, American Journal of Medical Science, and Proceedings of Experimental Biology and Medicine.

Dr. Foa relaxes during his spare moments with gardening and woodwork.

It is with sincere pleasure that the School welcomes a man of Dr. Foa's abilities to our midst.

Miss Viola Mae Young has been recently appointed Instructor in Bacteriology and Parasitology, a position for which she is highly qualified. Born and raised in Allegan, Michigan, Miss Young graduated from the Division of Veterinary Medicine of Michigan State College, receiving a baccalaureate in bacteriology and parasitology. Later she earned a Master's degree in bacteriology at the University of Illinois, and became assistant supervising bacteriologist of The Illinois Welfare Department. She is a member of the advisory board on bacteriology to the Hospital Service of The Illinois Welfare Department. Miss Young is



VIOLA MAE YOUNG

a member of the Society of American Bacteriologists, the American Society of Parasitologists, and the American Society of Tropical Medicine. We welcome her to the School.

Personalities

WILLIAM W. HUGGETT

Putting into Lake Michigan at the mouth of the Chicago River is a huge structure of steel and brick which houses offices and tons of war goods brought to it by rail, water, highway and tunnel. It is the North Pier Terminal, the largest of its kind in Chicago and, probably, in the country. The president of this active and highly essential concern is Mr. William W. Huggett, also a member of the Board of Directors of The Chicago Medical School.

Mr. Huggett was born in Chicago on May 30, 1894, and served in the last war in the Marine Corps. He obtained the basis of his present vast knowledge of traffic, transportation and business administration at Northwestern University. In addition to his position as President of the North Pier Terminal, he is also Director of the Mississippi Valley Association, Director of the Illinois Association of Warehousemen, and consultant to the Reconstruction Finance Corporation. He is a member of the Association of Commerce, and spends much of his time in Washington as a consultant to various governmental agencies which are concerned with war-time commerce and the conservation of essential materials.



WILLIAM W. HUGGETT

We found Mr. Huggett to be a most obliging and friendly person, with a deep-felt interest in his fellow men and in the progress of the War. He feels that the School has made excellent progress in the last few years, and that its property and financial status have markedly improved.

Mr. Huggett's special interest is in inland water transportation. He edits a cleverly-written company publication for his employees, and relaxes in his rare moments of leisure with golf. His home is in Flossmoor, Illinois, he is married, and has two sons in the services and a daughter away at school.

We are fortunate, indeed, to have a man of Mr. Huggett's character and capabilities associated with the School.

* * * *

FRIEDRICH W. NIETZSCHE (1844-1900)

Always an invalid, Nietzsche's mental abnormalities and final madness can probably be ascribed to an overactive brain abused by overwork and narcotics. The gradual transitional changes in his mental state are traceable in his writings. What apparently was his first attack of violent mental derangement occurred at Turin. He fell down at the gate of his house, powerless to rise unaided. After a lethargic spell, he spoke and sang noisily, and paid for trifles with large sums of money.

* * * *

Healing is a matter of time, but it is sometimes also a matter of opportunity.—Hippocrates.

* * * *

Sir Dominic John Corrigan (Corrigan's Pulse), put forth the following in reminiscing of his early professional career, when patients were few and fees occasional. "There is but one road to excellence and success in our profession, and that is by steady study, and hard labor; and you will at least always have this consolation in your dreariest hours of labor, that no proud man's contumely, no insolence of office, nor spurns that patient merit of the unworthy, can bar your way."

The following case of the "Four-Eyed Man of Cricblade" has been reported in the literature: "This unfortunate man had four eyes placed in pairs—the vision in each eye was perfect—each eye controlled by his will and acting independently of the remainder." (Can't pull the wool over his eyes!)

Abstracts

E. Haly, ARTERIOSCLEROTIC GANGRENE, A REPORT ON REFRIGERATION PRIOR TO AMPUTATION, Archives of Surgery, Volume 46, Number 4.

Gangrene of the feet and toes due to arteriosclerosis is often complicated by advanced age, heart disease, general toxicity, and diabetes. If the gangrene has extended proximal to the toes, amputation of the leg will be necessary.

The ice tourniquet technique consists of placing the leg in a metal box packed with ice. The metal box consists of two compartments, an upper and a lower one. Ice is added to the lower compartment so as to cover the leg to the knee. A half hour later when the leg is already numb, a gum tourniquet is placed on the leg at the tibial tuberosity and ice is set one to one and a half inches proximal to the tourniquet so that the blood supply is completely interrupted. This treatment is maintained for 48 to 96 hours, and supportive measures are indicated.

Six to eight hours before the operation, the upper compartment of the metal box is filled with ice, and this one extends from the leg to the upper third of the thigh. One half hour later a second tourniquet is tied tightly about the thigh, one inch below the line of chilling and above the surgical field. This tourniquet must be tight in order to occlude the arterial supply and to insure complete anesthesia.

The amputation is done between the two tourniquets and the anesthesia will last about one and a half hours. After the operation, a thin dressing is applied to the stump and is covered with bare ice bags for twenty four hours.

Post-operatively the patient is able to sit up in a chair for two hours a day, and no meals have to be deferred. As a matter of fact, the patients, after the ice tourniquet technique of amputation, had relatively good appetites postoperatively, and were able to sit up in a chair immediately. By using two tourniquets, the upper one enables the tissues through which the surgery is done to be washed free of and to recover from the toxins which were being absorbed from the infected part of the foot. This does not occur when only one tourniquet is used. Consequently, operative or postoperative reactions are slight, and preoperative and postoperative sedatives are practically eliminated; the stump is not harmed, and healing is very satisfactory.

V. P. Wassen, M.D., and E. E. Baum, M.D., IMMUNIZATION AGAINST RHEUMATIC FEVER, Journal of Pediatrics, Vol. 23, No. 1, July.

From 1933 to 1941, the long method of immunization consisting of frequent subcutaneous injections of crude N. Y. 5 strain hemolytic Streptococcus toxin was used. That meant 38 injections over a two year period. Since 1940 the short method has come into use, and it consists of six inoculations of tannic acid precipitated toxin from the N. Y. 5 strain hemolytic strep toxin, and these are given intradermally. None of these short type injections were followed by a general reaction or abscess formation, but local reactions did occur. Thus, tenderness and swelling and redness at the site of the injection, and a local itching for 48 hours appeared.

The results thus far obtained are good and the patient may secure a lasting immunity against an acute rheumatic fever reinfection. Since 1940, 80 ambulatory patients have been treated, and in 1940-41-42 no relapses occurred. Of a control group of 33, eleven suffered attacks again, and two deaths occurred. Thirty-one patients of the control group reported for treatment and drugs in 1942, and the two who did not receive treatment got acute attacks of rheumatic fever. Of the 29 controls left, six were laid up by rheumatic fever again.

After nine years of immunization experience, the authors feel that the child suffers no harm and is benefited by the prophylactic treatment with attenuated hemolytic streptococcus toxin.

* * * *

When we change our ideas, we change our friends because our friends are only the embodiment of our ideas.

"La première chose qui s'offre à l'homme quand il se regarde, c'est son corps," says Pascal.

The best doctors in the world are Doctor Diet, Doctor Quiet, and Doctor Merryman.—Jonathan Swift.

Nothing is so firmly believed as what we know least—Montaigne.

*Happiness is the shadow of things past,
Which fools still take for that which is to be.—
Francis Thompson.*

Organizations

A.I.M.S.

Implementing its traditional activity on behalf of the welfare of our medical students and internes, the Association of Internes and Medical Students extended its extra-curricular educational program to include two series of films this quarter. A.I.M.S. president, Arthur Sincoff, in a statement to the QUARTERLY, said that this program may be expected to be continued for the following quarter.

"With the expected 100 per-cent enrollment of the Freshman class, there is no reason why our organization cannot have a film and a lecture series. Our War Service activities will have to be accelerated to meet the pace of the coming invasion," said Mr. Sincoff.

Among the activities to be expected in the coming weeks are elections, discussion on the National Convention, Surgical film series, Blood Donor drive, and special lectures. It has been announced that Freshmen are invited to join and that current dues payments by all Juniors and Seniors are now being accepted.

PHI LAMBDA KAPPA

The Alpha Rho Chapter of Phi Lambda Kappa began its year's activities with a dinner meeting in January. Dr. Wolfson was speaker for the evening. Dr. Wolfson's speech concerned itself with the professional and social aspects of a medical career, for the student as well as for the practicing physician.

In February, Alpha Rho gave a testimonial dinner in honor of Professor Oppenheim's initiation as a national honorary member of Phi Lambda Kappa. The dinner was held at the Illinois Student Union in conjunction with the Chicago Alumni Society and Alpha Alpha Chapter of the University of Illinois.

Also present at the dinner were Dr. Rosenberg of the Northwestern University Medical School, Dr. Kaufman and Dr. Sered of the University of Illinois, Dr. Sicher of the Loyola Dental School, Dr. Loeffler of the Pathology Department of Cook County Hospital, and Dr. Cohen, Dr. Weinberger, and Dr. Brodsky of the Chicago Medical School. Dr. Epstein, Grand Scribe, welcomed Dr. Oppenheim on behalf of the fraternity. Dr. Oppenheim then presented a panoramic view of his life as student, teacher and physician.

The climax of the evening was Dr. Epstein's presentation to Alpha Rho of a loving cup representing

Phi Lambda Kappa's best chapter award for 1943. The award is at present in the library of the Chicago Medical School.

The evening was concluded with a violin solo by Marvin Ziporyn of the Junior Class. Plans for the coming months will continue the varied activities of the chapter.

PERNICIOUS VOMITING

(Continued from page 15)

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STROPHANTHIN

(Continued from page 13)

intravenous dose averages 0.5 mg. administered in one dose.

When the urgency and emergency have passed, the intravenous method may be discontinued, and the patient may be given five or six 0.3 mg. (gr. 1/500) hypodermic tablets under the tongue, during the course of the day, depending upon his requisites.

The efficacy of the medication is determined by the objective signs of disappearance of congestion, and in the maintenance of the compensation as testified to by subjective testimony of the patient, and lastly and most accurately, by the constancy of output as related to intake according to the water-balance chart.

Certainly, strophanthin has a definite place in cardiac therapeutics, and is indicated as noted. And, in addition, it may be of definite use in those cases in which the patients cannot tolerate digitalis, or in which digitalis has failed.

It is to be noted that the best results with strophanthin will only accrue, when experience, and long study, as with other drugs, shall yield knowledge of the drug's actions and therapeutic effects.

HORMONES IN CANCER

(Continued from page 12)

tinued contact under the proper conditions. Some carcinomas were produced in rats from families never having a spontaneous carcinoma of the breast. But it was found that it was a strain of low fertility that was associated with a high tumor incidence. This brings up the question of retention as a causative factor in the production of malignant tumors.¹²

One investigator has shown that by breeding mice and removing the litter and then rebreeding the animals, he could bring about the formation of a carcinoma in the breasts of these animals. He found also that by allowing the young to suckle only three breasts resulted in the formation of carcinoma in the remaining three breasts and not in those which were suckled.¹³ However, Ludwig A. Emge ruled out retention as a causative factor by rebreeding lactating mice. There is obviously some disagreement here among these investigators. Bagg obtained an increase in the percentage of mammary carcinoma in mice by rapid and successive breeding and removal of the litters to prevent suckling.¹⁴ He, however, maintains that in all cases it has been shown that there must be a susceptible strain. We can thus see that there all grades of variance in the reports. Obviously there must be some difference in the technique and controlling of these experiments or perhaps is it that there simply is no connection whatsoever between the lactating mice and the incidence of tumor formation? But, before reaching such a conclusion we must exhaust the possibilities of all the variations possible in the method of this type of experimentation.

Curiously enough we find that race and diet may affect the incidence of tumor formation in mice. Stahr, Guenot, and Mercier state, "Racial differences were believed to account for the capricious behavior of tumors when transferred from animals of one country to those of another. Yet, it has appeared that many indications of resistance seemingly referable to racial differences were the result of altered diet, and in many instances strange animals at first resistant soon became susceptible when housed under the same conditions as those animals which had no resistance."¹⁵ This statement might give an important clue to the reason for the discrepancies between the results of one laboratory and those of another. The mechanism involving the production of cancerous tissue may be so complex as to defy investigation in which only a limited number of the factors involved are controlled.

It has been found that cancer of the breast is dependent on the presence of estrogens. Emge states that heredity is of greater importance than the estrogens and that the role of the estrogens is limited by biologic patterns. He found that duct cells respond more readily than acinar cells to the carcinotropic influence of estrogens. There is an organ differentiation and strain differentiation with age and sex modifying the degree. However, when mammary tissue is not susceptible to cancer it responds to estrogenic stimuli by an order proliferation which although extensive remains definitely limited by physiological activity.¹⁶ Theelin in combination 1-2-5-6 dibenzanthracene yields a greater number of tumors than dibenzanthracene alone. It is interesting to note at this point that the end activity of the physiological response to the estrogens was a sterile pyometra.

Those animals in which there was a hereditary immunity were not affected by an injection of theelin in combination with dibenzanthracene. It was also shown that the physiological response to theelin is terminated by hypophysial changes. There is a remarkable enlargement of the anterior lobe of the pituitary; it may enlarge to eight to ten times the normal size. Carcinoma is not restricted only to female mice. It has been shown that male mice of susceptible strains when painted with estrin externally come down with breast tumors. The pathology is not limited to the breast itself. There are degenerative changes in the adrenals, spleen, thymus, and a hypertrophy of the islets of Langerhans.¹⁷ We see from this that the production of a carcinoma in one localized area of the body does not preclude involvement of distant organs albeit without the presence of metastases. The marked enlargement of the pituitary coupled with the histological changes occurring suggest that perhaps an altered hormone is being secreted which directly or indirectly through the causation of altered metabolism of the steroids in the body influences the formation and growth of malignant tissue. In connection with this it is to be observed that experimental hypophysectomy in rats retards the growth of tumors from the day of the extirpation.

We know too that prolactin is a hormone whose origin is in the pituitary and Zondek has reported that increased amounts of prolactin were found in the blood and urine of patients suffering with malignant disease of the generative tract. But this is normal prolactin and we have just finished stating that it is the abnormal secretion and not the normal prolactin from

the pituitary that might play an important role in tumor growth. How would we reconcile that statement with Zondek's? Zondek has observed that there is a decrease and finally an absence of prolactin in the blood and urine of those patients whose health is beginning to fail. He then implies that the absence of prolactin is an indication that the inhibiting substance has been overcome and that the organism is no longer able to continue the fight against invasion and extension of the malignant tissue.¹⁸ Thus we see that it is when the pituitary begins to fail to produce normal hormone that the patient begins to succumb. That the pituitary is enlarged and histologically changed would further substantiate the idea that it can now no longer meet the stress laid upon it. Which is cause and which is effect is a point to be considered. Does the pituitary fail because it can not combat the already present malignant growth or does it undergo changes which subsequently result in an absence of a restraining influence thus permitting what was once orderly proliferation to become now a malignant growth. There exists also a third possibility in this method of reasoning; and that is that the pituitary might act through the altering of the secretions of the other structures making up the hormonal system. This would seem more likely since the pituitary is not the only endocrine organ involved but also the adrenals, and the islets of Langerhans.

The pituitary is also known to be closely tied up with the gonadal function in both sexes and it has been shown by extrinsic application of certain estrogenic and in some cases androgenic substances that cancerous tissue can be made to form. Lacassagne has increased the incidence of breast tumors in mice by the injection of estrin but it was necessary to work with a susceptible strain group. Is it possible that this susceptibility resides in an inherent abnormality of the pituitary also resulting in the absence of the restraining influence?

Turner and Gomez found that the pituitary gland undergoes changes during estrin injections. Marked enlargement of the anterior part may be seen especially in rats. There is intense congestion and the entire gland may be almost completely composed of chromophobe cells, with practically complete absence of eosinophils. In conditions in which there was an actual involvement of the pituitary itself by the formation of a pituitary tumor it was found that the same amount of gonadotropic hormone was eliminated as in the normal pituitary.¹⁹ This would suggest

strongly that it was not so much the hormone elaborated but its utilization that was at fault. The investigators Turner and Gomez believed that this was a mammaryogen brought about by estrin and pituitary changes that was responsible in many cases for the tumor formation.

It now stands to reason that if one or both of the factors are absent that a carcinoma could not take place. That is, if the estrin was removed that there would not be anything for the pituitary to act upon; or if the pituitary was lacking that there would be nothing to act on the estrin to produce the mammaryogen of Turner and Gomez. But since it is not the presence of the estrogen whose carcinogenic activity we wish to determine but rather whether or not the pituitary exerts so profound a regulatory mechanism, it would be to advantage to extirpate this gland and then see if the estrin could cause carcinomatous changes.

Lacassagne found that hypophysectomized animals treated with estrins failed to develop carcinoma, but that if the tumor had started before hypophysectomy then the removal of the pituitary did not influence the development of the tumor to any extent.²⁰ This might indicate that the tumor mass might be the center of some sort of hormonal activity much the same as the placenta takes over the hormonal mechanism of the fetus after the pituitary has done its initial work in paving the way for nidation. In support of this statement it may be pointed out that in several cases removal of a primary growth of chorionepithelioma from the uterus has been followed by the disappearance of secondary growths in the lungs. This would thus suggest that the motor hormonal mechanism of the primary tumor being now gone, the secondary growths could no longer remain. But, we know from experience that such occurrences are exceedingly rare and that in cases of carcinoma metastases removal of the primary tumor has been of no avail. Still we must consider the problem of the duration of the primary growth and the duration of the metastatic growths as well as the relative hormonal potencies which may be present.

Although we know that different hormones produce different changes in the body still it has also been shown that the same hormones may produce different changes if, all other conditions being equal, there is a difference in the quantity and in the duration of the hormonal activity. Thus it may be shown almost paradoxically that an increase in hormone from some external source, be it from experimental injection

tion or from tumor elaboration may actually through the Law of Mass Action suppress the amount of hormone being elaborated from the primary source in the body.

In what direction or directions does the evidence herein presented point? Are hormones responsible for tumor formation or are they merely accessory factors? Are they responsible completely for some malignant growths and accessory for others? Are hormonal actions with respect to cancer variable, that is, are some endocrines to be blamed for growth stimulation while still others act in an inhibitory fashion? Experiments must be adequately controlled. The investigators must take into account the genetic factor, the extrachromosomal factor, perhaps the functional activity factor as well as the hormonal factor. This latter in itself may be the result of an interplay between several hormones. In view of what Ewing has said with regard to the individuality of the different types of malignant growths and in view of the vast amount of evidence much of it conflicting, we must seek not only for one solution with but one answer to the entire problem, but rather we must seek to remain open minded and to explore all the possibilities which present themselves. And as great milestones in medical achievement have previously been made, through continual striving for new facts and the integration of these facts, we will yet be able to discover the cause and the treatment for cancer.

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NEOPHYTE

By HERMAN L. WEISBERG

Nature has somehow provided every sizeable group of humans with its quota of geniuses, of fools, and of mediocre souls whose existence is taken as a matter of course, with tolerant unconcern, by other such mediocre souls. This anecdote concerns neither a genius, nor a fool; nor does it tell of one of those uninteresting mortals, the counterpart of whom we too often see in ourselves.

The usual hubbub accompanying the arrival of the new set of internes at the F—— Hospital had died down several days before. Dr. S., a tall, awkward, gangling neophyte in the medical profession had already made his place among his colleagues in this institution of mercy. His slow, good-natured, affable way, his benign and unruffled grin had marked him as the lovable, but unenviable goat of the hospital staff. Upon his broad and uncomplaining shoulders was to fall the brunt of those inhuman antics called practical jokes for the duration of his internship.

On this day the hospital was clothed in a heavy pall whose weight could almost be felt, for the victims of a horrible automobile accident were lying, mangled, pitifully close to death, in the accident ward. On the second floor, in the male medical ward, there lay a man, who, had he but the strength to raise his hand, would, too, be knocking at Death's door. And thereby hangs the tale!

The chief of the service and retinue of satellites had just completed grand rounds, and there was a heated discussion over the condition of the man in the male medical ward, the relative merits of this and of that therapy, the prognosis. At last the group broke up, and as they dispersed, that mightiest of the mighty, the house physician, spied Dr. S. in the corridor.

"We've just finished rounds," he said to Dr. S., "and there's a very interesting case on the ward that you ought to see. The man's disease, bad as it is, is complicated by curious eye findings. Take your ophthalmoscope with you and let me know what your diagnosis is."

S. was visibly anxious to see the case, and not wishing to waste time by waiting for the elevator, ran up two flights of stairs to his room as fast as his long legs would carry him, grabbed his ophthalmoscope, and dashed down to the ward to discover new truths in medicine.

PENICILLIN

(Continued from page 17)

As he entered the man's cubicle he was almost overcome by the sickening odor of the results of an enema on a violently sick man. However, imbued with the high purpose of a man of medicine, he braved the stench to make the examination. A glance at the chart revealed nothing startling; so he proceeded with the eye examination. He bent over the patient and looked into the right eye. The odor was becoming more and more unbearable. No unusual signs, everything normal. He looked into the left eye. Ah! this must be it! As he peered into the eye it dawned on him that he could not see the retina.—God! the stench is awful!—Perhaps his light was too dim to penetrate the pupil. No, it could not be that, because he had been able to see the retina in the other. Truly an amazing phenomenon! Strange, too, that he could not recall any such case in the text books. Perhaps that was the one section in the medicine text that he had not read too conscientiously. It was just at such a time as this that a man regrets not having done all his work thoroughly.

Up the stairs he went to his room, and straight to the bookshelf. Cecil's "Textbook of Medicine"—that would have it!—No, it isn't here.—Let's try the eye book.—The index. A hurried thumbing—the retina, page 346. Thirty minutes of such diligent search, but no satisfaction. Then, from the darkness there suddenly appeared Light! Of course there could be no discussion in the textbooks on medicine and in the textbooks on diseases of the eye on conditions found in a glass eye!

* * * *

Karl Vierordt (1818-1894) recorded the first accurate blood count, made upon himself in 1851. The sphygmograph was also a "first with Vierordt who quoted an old teacher, saying "Nothing is interesting about a scientist except the day of his birth, the day of his death, and the results of his investigations." Therefore, I add to Vierordt's accomplishments important studies on respiration, hemoglobin, blood flow, blood pressure, and the introduction of graphic methods for the study of the pulse.

The "couvade," the custom that prevailed notably among the Indians of Ecuador, in the north of Mexico, in Greenland, and in the Pacific coast tribes where the father, at the birth of a child, takes to his bed and behaves as if he were suffering the pangs of labor. Various restrictions of activity and diet precede and follow his confinement while the mother gets up and goes about her duties.

seven cases of subacute bacterial endocarditis using a combination of penicillin and heparin.

Most of the reports cited above are concerned with the use of the purified penicillin. There have been a few reports dealing with use of the crude product as a topical application in easily accessible lesions, such as, suppurating wounds, furuncles, carbuncles, and chronic external ulcers, in addition to one report on the use of crude penicillin applied to intrathoracic post-traumatic empyema all with very good results therapeutically. The startling thing about all these reports with the crude as well as the purified penicillin is not only the cure effected but the rapidity with which the patient is started on the road to recovery.

As is commonly known, penicillin is as yet not available to the general public because all the present supply has been allocated to the armed services. The reason for this lies in the difficulties of making penicillin in large quantities. Existing pharmaceutical plant space was inadequate because of the large areas needed for surface cultivation of the mold. Therefore new plants had to be built for the specific purpose of preparing penicillin. These plants are nearing completion and it is hoped that in the not too distant future penicillin will be available to all.

* * * *

John Winthrop, founder of Boston, sought for and received advice from an English doctor friend in 1643, in the form of a still existent document, the earliest document of American medical ethics.

"No man can with a good conscience take a fee or reward before ye partie receive benefit apparent: and then he is not to demand anything, that shall be so given him, for it comes from God.

"A man is not to neglect that partie, to whom he hath once administered, but to visit him at least once a day, and to meddle with no more that he can attend well. In so doing, he shall discharge a good conscience before God and Man."

* * * *

Thomas Thacher, a preacher and physician (1667) wrote the first American Medical publication to be printed entitled, "A Brief Rule to Guide the Common People of New England how to order themselves and theirs in the Small Pocks or Measles."

It was a single printed page of practical directions, and the only medical work of the century to appear in print.

LIFE

Asked to give a definition and characterization of Life, senior medical students contributed the following "philosophical" thoughts:

Life is a very complex problem, which is the culmination of nine minutes of pleasure with an interval of nine months of waiting.

Life is what you make it! . . . Give me liberty or a wife!

Life is something that is given us—without our request—and is most usually taken from us—against our will.

I don't know what constitutes life. That it is more than eating, sleeping, defecation, fornication, is somewhat doubtful. For the infant, performance of physiological functions is the sum total of its existence. For the senescent these same functions become the quintessence of happiness: to the able to urinate despite prostatic obstruction, to savor a steak when teeth are gone and taste buds impaired.

Life is like a joke, it counts not how long it is, but how good it is.

Life is a magazine devoted to the graphic illustration of the news. It is published every Friday and contains pictures and articles of newsworthy events. It is published by a Mr. Luce who is married to a globeloney and that's about all I know of that. Life is at times a good sedative, at other times hypnotic, but is almost always well planned and easy to take as it is cheap and hardly ever bitter.

Life has been uniformly defined as one damn thing after another. . . . You have it, I have it, the ants have it, and even the Blue Green Algae has it.

Life, to me, represents a formula—whose factors are made up of the ability to achieve; the ability to accept defeat in good nature, when necessary; the ability to persevere in one's ideals, and the maintenance of cordial relationships with one's contemporaries and friends. To "have lived" signifies the completeness of an existence by having worked and reached a desired goal—whether financial, moral, or spiritual. To have merely "existed" is nothing, if one's innate usefulness to the community and general surroundings has not been fulfilled. Essentially, life is the chemical, physical, and psychical manifestation of an individual in his ability to cope with his environs, and the satisfactory culmination of his usefulness to himself and to others.

Who knows? Who's alive?

On a toujours pose cette question—"Qu'est-ce que c'est la vie, c'est a dire maintenant. Mais après la siecles qui sont passées—ont ecrit des veritables tomes sans des resultats. Moi—Je ne sais pas qu'est-ce que c'est la vie, c'est a dire maintenant. Mais aspres la dimanche venante—la journee de mes noces je pourrai dire toute une histoire de la vie. Pourtant a le temp—probablement je serai d'un autre avis. Je ne voudrai pas parlai—pas de tout. Ainsi on aura oublies la question qui est la meillure route la tout.

* * * *

PHOTOGRAPHY

(Continued from page 9)

the treatment of varicose veins, and the extent of venation in cases of cirrhosis of the liver and ascites, are a few examples of the uses of infra-red photography.

The properties of infra-red photographs are illustrated in the accompanying photographs. Note the wealth of minute surface detail in the photograph of the leg made with panchromatic (Eastman Super-XX) film; note that the most superficial veins show, but nothing below the surface of the skin. Contrast this with the photograph made with infra-red radiations (similar lighting was employed for both photographs, namely two No. 2 Photoflood lamps three feet from the subject, each about 30° to the camera). Note that in the infra-red photograph, almost all surface structures disappear, that a few of the superficial veins shown in the panchromatic photographs are visible, but that a number of additional structures are visible: the underlying venous pattern is visible and obvious. (The "v" or "w" shaped vein serves as a point of orientation in both photographs.)

A few papers describing the technics, uses, and results of infra-red photography are listed at the close of the essay.

Other divisions of the science of photography, such as luminography (photography of fluorescence induced by ultra-violet light), fluorescence microscopy (use of fluorescing materials in the identification of various micro-organisms), various types of color photography, electrocardiography, and many others, are outside the realm of the present brief essay. It is sufficient to say that the precise science of photography is capable of recording, precisely and permanently, many of the transient phenomena involving radiations from x-rays in one part of the radiation spectrum through visible light to infra-red in another part. Its uses are limited only by the ability of the scientists who devise the equipment and the scientists who use it. The two divisions described herein, fluorography and infra-red

photography, comprise only a small part of a science that has contributed much toward the well-being and welfare of humanity.

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PSYCHOTHERAPY

(Continued from page 7)

sible to distinguish a merely apparent recognition, an acting "as if" one recognized all this, from the actual experienced understanding. For the really experienced understanding is automatically translated into action and can therefore be proved objectively by a change in behavior. For all our actions spring from our interpretations and goals, i.e., the sum total of what we have "recognized" in our lives. This is true even when we do not admit to ourselves the psychic background of our actions, when it seems as if we do not know this background.

We must not overlook the point that the mere disclosing of psychic connections is in itself an experience for most people. For this reason psychological writings and talks are so popular, though their effectiveness in reshaping the neurotic life-style is sometimes comparatively negligible. Similarly, we find in most patients, at the beginning of the treatment, a striking improvement and a sensation of relief. This is absent only in those cases in which the patient submits to treatment involuntarily, either

under the pressure of relatives or so as to make it appear as if he intended to do something about removing the neurotic symptoms which have disturbed his environment. For in all those cases in which the patient is driven to the therapist by the suffering from his ailment, in those cases in which he seeks treatment because the war costs of his customary battle with human society have become too great for him, the patient experiences a feeling of relief at the beginning of the treatment, as the result of the opportunity for discussion, the understanding which he suddenly finds in another person, and the dawning of fresh possibilities for self-knowledge. There are patients who are so shaken by the mere disclosure of their "arrangements," by the recognition of their accustomed goals, by the discovery of their control of their further deviation and mistakes, that this experience alone furnishes the momentum for successful conclusion of the cure. These are often very ambitious persons, who above all would not want to appear stupid and for whom the accusation of not correctly understanding something contains a severe challenge. These individuals derive from their ambition the strongest impulse for a completely rational comprehension of the problem—an understanding which, as said before, in the cases may be synonymous with the change in attitude. For them, rational understanding is at the same time a very intense emotional experience. In the case of most patients, however, sooner or later we arrive at a situation where the theoretical discussion of psychological problems fails to bring any further visible progress, irrespective of whether the situation of the patient has been elucidated or not. Even for the patient who at first follows with enthusiasm and great readiness there will often come a period of stagnation. He will then be just as one who was in opposition from the beginning. In all these cases, rational explanations will not suffice. Other techniques must be used to convince them and to train them in a different orientation to life.

(To be continued)

BUY WAR BONDS
AND STAMPS

Dear old lady: "Little boy, does your mother know that you smoke?"

Junior: "Listen, lady, does your ol' man know you speak to strange men on the street?"

An anthropologist finds that the human jaw has only dropped a quarter of an inch in a hundred years. But of course that was before the new Defense Tax was introduced.

Two psycho-analysis met. Said one to the other: "You feel fine. How do I feel?"

Physician's Epitaph
Resting, for corpses
Have no pains or aches.
Peacefully resting
Among his mistakes

The Nurses' Aide Makes a Diagnosis
(From a Story in COLLIERS)

"How do you know?"

She smiled, "I have been working in hospitals as a nurse's aide and I recognize the symptoms of sacroiliac trouble when I see them. I suspected it when you said you slipped last night while dancing and I was almost positive when you stumbled HERE in the park last night." (Bravo!)

Definitions

A conference is a group of men, who, individually can do nothing, but as a group can meet and decide that nothing can be done.

A statistician is a man who draws a mathematically precise line from an unwarranted assumption to a foregone conclusion.

Sign in a drug store window: If you don't use our soap, for heaven's sake, use our perfume

W. C. T. U.

A man should BE upright, not be KEPT upright—
Marcus Aurelius.

The place where optimism most flourishes is the lunatic asylum—Havelock Ellis.

A Plastic Surgeon's Dream

If the nose of Cleopatra had been shorter, the whole face of the earth could have been changed—
Baise Pascal.

Could Be!!

Aristotle said that the very look of a menstruating woman would take the polish out of a mirror, and the next person looking in it would be bewitched



"But, Doctor, according to Reader's Digest . . ."

One and one are two,
But if one and one should marry
How is it, in a year or so,
There's two, and one to carry?

Talent is that which is in a man's power; genius is that in whose power a man is.—James Russell Lowell (The little woman?—)

*A maid to a man is a vision ethereal.
A man, to a maid, is a piece of material.*

Mother: "Now, Junior, be a good boy and say 'Ab-b-b,' so the doctor can get his finger out of your mouth."

HISTORICAL ODDITIES

A child born to an unmarried servant in England was buried by the mother. The other servants upon noticing the blood in the room and following the trail to the grave, dug up the child, who immediately began to cry. The baby was put to breast and survived the ordeal. It was normal in every respect.

* * * *

A pregnant woman had such a perverted appetite that she used to cut her husband while he lay asleep next to her and suck the blood from the wounds.

* * * *

There was a report of morning sickness in a husband two weeks after amenorrhea occurred in his wife. The nausea continued for two months before the diagnosis of pregnancy in his wife was made.

* * * *

In a woman of 47, labor pains occurred without the expulsion of a fetus. Impregnation ensued twice afterward, each followed by a normal delivery. Fifty years later, a postmortem was done and revealed a calcified fetus.

* * * *

In Paris in 1875, a Russian peasant was seen whose face, head, back, and limbs, were covered with a brown hairy coat looking like wool and several centimeters long.

* * * *

In Paris in 1702, a woman was delivered of a boy; in the placenta was discovered a sort of bladder which was found to contain a female fetus of five months.

* * * *

A woman, 81 years old, had persistently menstruated through lactation, and for 47 years had interruptedly nursed many children, many of whom were not her own.

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A young male medical student at the University of Louisiana possessed normal male genital organs but menstruated regularly. The quantity was one to two ounces and the discharge lasted from three to six days.

* * * *

There was supposed to have been a Hungarian monk who could decide the chastity of females by the sense of smell alone!

* * * *

Miss Conley, a member of an American circus, who weighed 480 lbs., was smothered in bed by rolling over on her face; she was unable to turn on her back without assistance.

* * * *

Among the indigenous Australians, menstrual superstition is so intense that during this period, the women are forbidden to touch anything that men use.

* * * *

A woman was seen in Paris who had a "mane." The hair grew out from between the scapulae just like a horse's mane.

* * * *

"Man has climbed up from some lower animal form," says John Burroughs, "But he has, as it were, pulled the ladder up after him."

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CHAS. P. BAUDELAIRE (1821-1867)

Baudelaire was a life-long sufferer from complex nervous disorders. This is reflected in some of his writings, which, however, retain the innate beauty of his poetic genius. Baudelaire sought escape in hasheesh debaucheries, in alcohol and opium. In 1866, while showing cathedral sculptures to friends, he suddenly fell. He pretended that his foot had slipped, but it was a brief attack symptomatic of the aphasia and hemiplegia which resulted in his death little over a year later.

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